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PULMONARY TUBERCULOSIS AS AN OBSTETRIC COMPLICATION *

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To obtain an approximate idea of the frequency of tuberculosis during pregnancy we assume in the absence of data that it is about the same as among women of the child-bearing age. From 25 to 29 per cent. of all women in this age period die of tuberculosis and the general death-rate for the period is 8 per thousand. Consequently the yearly death-rate from tuberculosis for women between the ages of 15 and 50 is from 2 to 2.3 per thousand. Now, assuming an average duration of the disease of from five to eight years this would give a frequency between 1 and 2 per cent. This would indicate that every year there are in the United States between 22,000 and 44,000 gravidæ with active tuberculosis in one of the three stages.

Probably if all latent cases were included the number would be greater. I omit consideration of such cases that do not become active during pregnancy. Until there is more uniformity in methods of diagnosis and classification it is impossible to secure data from different clinics and institutions which can be used in computing the extent of the disease. The adoption of the suggestion of Flick of Philadelphia, made at the recent International Congress on Tuberculosis in Rome, would help to secure more reliable data. He proposes a standardization of the symptoms of tuberculosis and the adoption of an international history sheet. The introduction of such a uniform system of examination and records would bring uniformity into the statistics which now show a variation of from 1 to 50 per cent. in the frequency of tuberculosis in different institutions.

The management of this complication depends on the effect of tuberculosis on the egg and on the pregnancy; and also on the effect of pregnancy, labor and the puerperium on the course of the tuberculosis. Considering first, the effect of tuberculosis on the fetus, it must be admitted that fertilization and nidation may occur in a tuberculous tube or uterus. This eventuality is, however, very rare; but the infection of the decidua, placenta and chorion has been shown by a number of observations to occur not infrequently. When this happens, the blood of the fetus may contain tubercle bacilli. Only further observation can determine how often this occurs. Also infection through the spermatic fluid may occur.

The discovery of tuberculosis in the first two months of child life, however, is rare. Practically all observers agree that tuberculosis when it is found in infants is the result of infection after birth. It may be that fetal infection is easily overcome during intra-uterine life. A marked immunity at birth, however, does not exist. Some predisposition to the disease may occur. The nature of this has been much discussed, but without result.

EFFECT ON PREGNANCY

The effect of tuberculosis on the course of pregnancy is slight. In some cases in which there is considerable involvement of the placenta or decidua, abortion may occur.

The effect of pregnancy on the course of the tuberculosis differs much in individual cases, depending on the progress of the disease, the surroundings of the patient and the existence of complications, such as foreign infections and toxemias. If the patient gets through the first three months well there is often an improvement in her condition. She may increase in weight and in strength and come to labor in fair condition. This favorable course is more common in tuberculosis in the first stage. Sometimes it is found in the second stage of the disease. In both the first and the second stages the patient may begin to fail in the last three months. Respiration becomes difficult, coughing is very disturbing, the woman becomes very weak and loses weight. In the third stage the prognosis is always bad and the woman may die before labor begins.

The description just given is not agreed to by all. Many contend that there is always an increase in the tuberculous process during pregnancy. Assuming this to be a fact, various explanations have been given to account for it. A pregnant woman is not particularly susceptible to other infections. The special susceptibility to tuberculosis of the lungs has been attributed to the contraction of the thorax and disturbance of respiration by the lifting of the diaphragm and venous congestion. Also to the tissue changes in the lungs and air passages have been ascribed deleterious influences.

To these factors, which indirectly favor the development of the tuberculosis, have been added others which might directly favor the growth or increased virulence of the tubercle bacillus. Among such alleged factors are changes in the number and character of the leukocytes and also of the opsonins of the blood of pregnant women. Recently Hofbauer has held that there is a decrease in the lypolitic enzymes of the blood-serum of pregnant women which leads to a lipemia that favors the growth of the tubercle bacilli. This theory not having been confirmed, more recently still, he and Christofoletti and Thaler have tried to show that there is a condition of lipoid anemia — cholesteremia — that is favorable to the development of the tuberculosis germs. This latter theory remains to be proved or disproved. Meantime we cannot admit the assumed clinical fact which these

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workers have tried to explain, viz., that all such cases grow worse during pregnancy.

If the patient has passed through pregnancy in good condition, labor may be quite normal, especially when there are no pathologic conditions in the passages or passenger. If she be very weak labor may be a serious strain.

It is acknowledged that in the puerperium the tuberculosis generally becomes worse even in milder cases; and in bad cases the patient may succumb within a few days or a few weeks. Perhaps the strain of labor breaks up old infection foci or causes injuries which complicate the situation. One is reminded of the exacerbation of appendicitis in the puerperium.

PROPHYLAXIS

There are two problems in prophylaxis, the prevention of pregnancy in a tuberculous woman and the prevention of infection in a pregnant woman or one liable to become pregnant. The latter problem is very important and often overlooked or slighted.

The chief danger of infection for the woman is from her husband. A man with tuberculosis should not marry. If a husband acquires tuberculosis after marriage, he should avoid infecting his wife. Every consideration of reason and affection demands this course. It is the duty of all who are interested in preventive medicine, not only health officers, but also the medical profession, to spread information on this subject. There is nearly as much reason why a tuberculous man should not marry as why a tuberculous girl should not marry. If in the married life, the husband acquires tuberculosis first, i. e., before his wife, he should, if possible, undertake a sanatorium cure. Even if a cure is not accomplished, he learns in the institution how to avoid infecting others and acquires the intelligent self-control necessary to the avoidance of the greatest danger.

The other problem in prophylaxis is the prevention of pregnancy in a tuberculous woman. Of course, a girl with active tuberculosis should not marry. This should be taught in all possible ways until it becomes a moral law in every civilized community. The prevention of pregnancy in a tuberculous wife can be accomplished by abstinence from sexual congress, by the use of measures to prevent conception and by artificial sterilization.

Of course, we advise abstinence. Sometimes it will be practiced, but rarely can we feel certain that it will be continued for any considerable length of time. Preventive measures are generally failures in the end. Hence we come to the somewhat complicated question of artificial sterilization.

ARTIFICIAL STERILIZATION

It is not immoral in itself. The serious objections to the induction of abortion do not apply to it. The chief objection is that the patient may recover from the infection and then desire to have a child. This objection is overcome by doing a temporary sterilization. For nulliparæ or women with only one child or women who have a good chance to recover, a temporary sterilization should be chosen. For women who already have several children or those who have very little prospect of a permanent cure some permanent sterilization operation may at times be preferred.

Whatever operation is made it is especially important that a written agreement be had with both wife and husband in order to avoid future possible legal complications.

It is well known that a simple ligation of the tubes is not a reliable method of producing sterilization. Neither is the incision between double ligatures sufficient. It is necessary to bring the uterine end of the tubes under the peritoneum or within the broad ligament. This can be done through a vaginal celiotomy and is among the simplest and safest of gynecologic operations in the absence of pregnancy, and with a patient in a fair condition. Later it will be possible, if the patient recovers from her tuberculosis, to implant the distal part of the tube into the uterine portion.

Several reasons may favor combining the sterilizing operation with the induction of therapeutic abortion. This may be done if the pregnancy has not advanced beyond the tenth or twelfth week. Schauta favors the practice and avoids injury to the large, soft and congested uterus by catching the round ligaments one at a time and bringing the isthmial portion of the tubes into the peritoneal opening. After the twelfth week of pregnancy it is better to empty the uterus if abortion is necessary and to wait a few weeks before sterilizing.

The two most important methods of permanent sterilization are castration and hysterectomy. Bumm combines them. He and others contend that removal of the ovaries will favor the healing of the tuberculosis through its tendency to cause an increase in the fat which helps the struggle against the infection. Others deny that the healing of the tuberculous process is effected by such an increase of fat in the body and hold that the nervous and psychic disturbances arising from the removal of the sexual glands is an injury to the patient.

Castration may sometimes be indicated as a sterilizing operation in order to stop the menstruation that may be attended with much pain or with serious loss of blood. Hysterectomy would meet the same indications and alone might be preferable to castration as the organism would retain the ovarian glands whose secretion might be of value for some time. The combination of the two procedures in the Bumm operation seems contrary to conservative practice and can be justified only by exceptional clinical results.

Pincus' method of atmocausis, or obliterating the uterine cavity by burning it out with superheated steam, has not found much general favor. The use of the Roentgen ray to destroy, more or less completely, the sexual glands is too uncertain to promise much for the future.

When both husband and wife are tuberculous, it would seem more reasonable to sterilize the husband by an operation on the vas deferens. This would be equally efficient and less dangerous, as it is generally made without an anesthetic.

INTERRUPTION OF PREGNANCY

If in spite of advice and care a tuberculous woman becomes pregnant, or if a gravida becomes infected with tuberculosis, the first question in the management will be that of the interruption of pregnancy. There are two indications for the induction of abortion in this condition: first, the vital indication, when it is necessary to save the life of the gravida who is in immediate danger of dying, and second, the prophylactic indication, when it is done to prevent the development of the disease which may be expected to occur from gestation and labor. The operation is rarely done for the vital indication. It does not hold with a patient in the first stage of tuberculosis and with one in the second and third

stages only in the last half of pregnancy when artificial abortion is generally useless.

Practically, nearly all therapeutic abortions for this complication are made for the prophylactic indication. The justification of the operation depends on the correctness of the assumption that the patient's condition will suffer serious injury by the continuation of gestation and that this injury can be averted by the abortion. It is evidently very difficult to reach objective certainty with such an assumption. The correctness of the conclusions must depend on the ability of the physician to form a correct judgment. Assuming that he possesses a good theoretical knowledge of the premises and an acute sense of his responsibility, yet he must have experience. Few physicians have seen enough cases to enable them to form a correct judgment from their own experience. The reports from the literature are hardly encouraging. Veit collected 745 cases of induced abortion for this complication. Of this number the outcome was given in only 347 cases. In only 199 or about 57 per cent. were the patients reported as improved. One patient died as the result of the operation and 107 patients died within a short period, while forty-one more are reported as unchanged. This shows an absolute failure of the operation in about 43 per cent. of the cases. This is certainly a discouraging outlook. It may be admitted that not all of these operations were done from the prophylactic indication. Also, there is no classification of the cases showing the stage of the disease. The report is valuable, however, to counteract the impression that the justification of the operation may be assumed.

It is indeed possible that more years of life would be saved if the operation were entirely abandoned. We have of course the destruction of fetal life or a fetal mortality of 100 per cent. Is this offset by the increased length of life of the 57 per cent. of mothers whose condition is improved by the operation?

The legal aspect of the question demands attention. Our laws do not recognize the prophylactic indication. Only those abortions are exempted from the penalties of the criminal act that are done to save the life of the mother. It is generally assumed by physicians that an abortion done to save the health of the mother would also be accepted, but lawyers by no means agree to this assumption. In Germany this feature of the law has been much discussed in the last two years.

It is certainly not easy to find a logical justification of the prophylactic abortion. It is, of course, feticide — a destruction of human life. Who has the right to destroy this life? Has the mother? If so, can she give the right to a third person? When the mother is in imminent danger of death from the fetus it may be admitted that she can protect herself by destroying the fetal parasite. But when there is only an assumption that her health may be injured by the presence of the fetus, her right to take the fetal life is certainly much more questionable.

These considerations simply show that the question is a complicated and serious one, and that the responsibility of the physician who decides in favor of the measure is great. It is certainly desirable that the decision should be made only after a professional consultation. It is often true, however, that an internist is more apt to recommend the operation than to veto it. The obstetrician is not freed from his responsibility when an operation is recommended that he cannot approve. It would be no less than degrading for anyone to employ his skill as an instrument to do what he considers wrong or unjustifiable.

My own conclusion is that we must individualize. Sometimes, but rarely, abortion is justified. It should be done in the second half of pregnancy, only for the vital indication. All effort here should be made to save the fetus — to bring it to a safe viability term. If that cannot be done and the mother is about to die, we may take the only chance to prolong her life. In the first half of pregnancy we should carefully watch the progress of the disease. If the patient is under the most approved treatment and nevertheless grows worse, as shown by cough, fever, and loss of weight, with hemoptysis, then abortion should be induced. We must particularly take into consideration and allow for nausea and vomiting and other disturbances occurring in the second and third months of pregnancy. On this account it is sometimes difficult to decide on the operation before the fifteenth or sixteenth week.

A study of the conjunctival and cutaneous reactions in tuberculosis have shown that in an advanced stage of tuberculosis there may be a negative reaction to either. This is regarded as a bad sign since it denotes the lack of reaction in the organism. Wolff-Eisner has proposed to apply this fact in confirming the indication for induction of abortion when pregnancy is complicated with tuberculosis. In a case in which previously a positive Wolff-Eisner test showed a good reaction, its loss would denote a bad prognosis. If the reliability of this test is confirmed it may assist in deciding on an operation.

Much has been said of the social indication. It is a dangerous subject but cannot be ignored. A poor woman who has a number of children, who contracts tuberculosis and then becomes pregnant, is certainly in a different class from a well-to-do young woman in her first or second pregnancy. Without subscribing to the justifiability of the social indication as such, we agree that the social condition has a bearing on the prognosis and becomes a factor in deciding the prophylactic indication.

It may not be out of place in this connection to add that abortionists are beginning to use the prophylactic indication as an excuse for inducing abortion in cases in which there is no suspicion of tuberculosis. Women who wish to have an abortion have learned to use this plea and represent to the physician that they fear tuberculosis and desire help for this reason. Criminal abortion is rapidly coming to be recognized as a crime that affects the morals, health and lives of a considerable portion of many communities and even seriously threatens the existence of nations. Anything that encourages the crime must be avoided. The induction of abortion for weak or doubtful indications must not be allowed.

METHOD OF INDUCTION OF ABORTION

The best operation is one that involves the least risk from hemorrhage, infection and shock. During the first twelve weeks the uterus may be emptied under anesthesia with rapid dilatation and curettage. From the twelfth to the twentieth week a preliminary dilatation of from sixteen to twenty-four hours with laminaria tents should be employed. Sometimes the tent dilatation is desirable as early as the tenth week whenever the cervix seems firm and might dilate with difficulty. Of course, the danger of the curet must be kept in mind and only an instrument with a broad loop and a flexible shank should be used. Some expert operators prefer a hysterotomy, but I believe the average physician will have less risk with dilatation and curettage. As has been previously stated, sterilization may be combined with the evacua-

tion of the uterus. In the rare cases of induction of abortion between the twentieth and twenty-eighth weeks hysterotomy is probably the safest and least exhausting procedure.

During pregnancy the patient should be treated like any other patient with tuberculosis. She should breathe fresh air, be well fed with good nutritious food and avoid exhaustion or fatigue. Like other patients she must learn to take care of herself, avoid other infections and diminish the danger of infecting others. Whenever possible a course at a sanatorium is desirable.

During the entire pregnancy she should be kept under very close watch. Temperature and pulse should be taken two or three times a day. Weight should be taken twice a week. Elimination by bowels and kidney should be watched. The amount of exercise should be regulated and the amount of sleep attained should be known. In particular the diet should be controlled and its exact caloric value determined and recorded.

Even when the patient has done very well during the middle of pregnancy, she may retrograde in the last two months and reach a serious condition bordering on collapse on account of disturbances in nutrition and respiration. Here the induction of premature labor is urgently indicated. By relieving the patient from the most trying four to six weeks of pregnancy she comes to the arduous period of the puerperium in a better condition and with better prospects. On account of the child the operation should be postponed to the end of the thirty-sixth week if possible. Then it should be done so as to furnish the quickest relief. Generally metreurysis after rupture of the membranes is the best method. After the introduction of the bag pituitary extract may hasten the labor. Sometimes a vaginal cesarean section will prove the most serviceable operation.

The watchful care of pregnancy is redoubled during labor. The physician should remain with the patient, not for the purpose of interfering but to observe the progress and the effect of the labor. Every possible care should be taken to prevent infection. In particular the third stage should be managed with patience to avoid hemorrhage and infection.

It is a well-recognized fact that the puerperium is the period of greatest danger. This may be due, as already suggested, to breaking up of old infective foci by labor and the lighting up of new and extensive infections in the lungs. It may be due to the dissemination of tuberculous infection from the placenta. Sometimes acute miliary tuberculosis occurs and is differentiated with difficulty from puerperal sepsis. Genital wound infection may occur and become unusually virulent on account of the diminished resistance of the patient. Loss of sleep from disturbance of the baby and from lactational troubles may be a factor. If the patient has been used to sleeping in the open air and is now kept in a room, this confinement will distress her. An unnecessary restriction of the diet may help to reduce her strength.

All these disturbing factors should be considered in the management. Granted a safe labor and subsequent care that obviates puerperal infection, with a good diet, fresh air, and removal of worry on account of the child, a tuberculous patient will avoid most of the dangers of the dreaded puerperium.

NURSING IN TUBERCULOSIS

The objections to the nursing of the baby by the mother are the danger of infecting the child and the strain of nursing on the mother. The child's chances of escaping infection are no doubt better if it is removed from the mother entirely. However, this is often impossible. The chance of infecting the child will be lessened if she has learned to take care of the sputum. In poorer houses it is of great importance to train the mother. If a mother has fever, cough and many bacilli in the sputum she should not be in contact with her child or with other members of the family. In the first stage, however, the danger of infecting the child from nursing is not much greater than that which arises from caring for the child.

That nursing is an added strain on the mother is true and this furnishes a good reason in many cases for forbidding nursing from the start or after a short time. Consequently, the same care that was given to the gravida must be extended to the puerpera. If she loses weight and begins to decline in strength, she must wean the child at once.

The rule of procedure is as follows: In any case, if the mother can afford to employ a wet-nurse she should do so. If one is not to be obtained and the child is strong it is fed on modified cow's milk. A competent child's nurse should take entire charge of the child. If the child is weak or premature and not likely to thrive on artificial food it may nurse from the mother at least in part but with every precaution to prevent infection. It is better to give the milk pumped from the breasts. If the mother cannot afford to employ a wet-nurse or a child's nurse but must care for the child herself, she may begin to feed it once or twice a day. Little by little she should wean it so that by the end of three or four months nursing is entirely abandoned. The entire management must be strictly superintended by the physician.

SANATORIUM AND DISPENSARY CARE

Municipal and private sanatoriums and dispensaries should give special care to women before confinement and to the mother and child. At present there seems to be no provision for this class of patients in the United States. Large institutions should have special departments for these cases. In populous cities special sanatoriums for tuberculous gravidæ and for tuberculous children would be desirable. To such institutions could be sent all patients who cannot be satisfactorily treated at home. No other class of tuberculous patients is in as much need of proper treatment and no other class is at present so much neglected. There are probably 10,000 women yearly in this country who should be sent to sanatoriums. With an average residence of three months to each patient they would require 2,500 beds or fifty institutions with fifty beds each.

A children's department should be provided in connection with the maternity department where children under 4 years, as a rule already infected, whom the mothers could not leave at home, might be received. The establishment of free maternity and children's sanatoriums for tuberculous patients would attack the disease at its source and thus aid materially in its eradication.

IMPORTANCE OF THE PROBLEM

In the study of this problem there is some danger that we lose ourselves in the discussion of professional technical details. What is the end of the whole matter? It cannot be to save a few months or years of life to poor sick women who as long as they live will be sources of danger to their families and to the community. It cannot be to bring into the world weak, defective children who become infected early and go through a short,

miserable life spreading disease and undoing the work that has cost much effort and money. It were better to sacrifice both women and children.

Our aim is to save and cure tuberculous women if possible; if not, to prevent them from injuring others. We must protect the children from infection. This cannot be done by individual effort. Concerted professional and social effort is necessary. This is not simply a medical or obstetrical question in the old sense. It is a part, and a very important part, of the whole tuberculosis problem.

Seen from the point of view of public health and preventive medicine, the problem has a different aspect from that which it formerly presented to the short-sighted practitioner traveling in the rut of custom. Prevention of pregnancy, whether it involves celibacy or sterilization, comes to be almost a moral law. Induction of abortion remains the area still covered with the mists of doubt. Ethical, legal and professional mists make a uniform treatment impossible. The care of the mother and the protection of the child demand professional, philanthropic and state cooperation and that alone promises great results.

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ABSTRACT OF DISCUSSION

DR. C. L. MINOR, Asheville: I am in accord with the statement that the woman with active and progressive tuberculosis, producing constitutional symptoms, is unfit for marriage and unfit for the production of a child; but with regard to the woman whom we know perfectly well to be tuberculous, but who has no active trouble at the time, I think the rule that Dr. Bacon lays down is too wide. I have been called on very often to study the question in my patients, and I am not ashamed to say that I have allowed the marriage of tuberculous girls and I have seen a good psychologic effect and benefit to the patients from these marriages. If the whole purpose of medicine is eugenics, possibly that may be wrong. It comes down to a question of prognosis and in the estimate of prognosis, I imagine that the man who concerns himself with tuberculosis is better qualified to draw a conclusion than the gynecologist. Granted that the actively tuberculous woman has had a child, what shall we do with the child? The veterinarian tells us that calves born of tuberculous mothers that are taken away at once and kept elsewhere grow up into healthy cows. Hard as it is, the child of a tuberculous mother should likewise be separated from its mother, perhaps not absolutely, but the care must be extreme, the separation as close to absolute as it is possible to make it. This should be from the very beginning, except for one or two days. There should be no nursing at all. There is nothing more disastrous to a tuberculous woman than lactation. In the eighteenth century and in the beginning of the nineteenth it was stated that pregnancy had a good effect on tuberculosis. Since 1843 it has been recognized that this was a mistake and that it is disastrous, and yet, in the early months I have seen distinctly good effects. Metabolism seems to be improved and things go splendidly. After that point the course is usually downward. If the tuberculosis is active I believe the abortion should be brought about in the early months. From the fifth month on the consensus of opinion is, for reasons that have not been explained that interference has a worse effect than allowing the case to go to labor. Instrumental interference favors dissemination. If the patient goes to labor, Dr. Brown of Saranac Lake has advised the use of chloroform to avoid difficult labor and exertion on the part of the patient and to prevent dissemination. Lessening the loss of blood in labor is also very important. Active tuberculosis cases in which the process is making advances, as shown by constitutional symptoms, will in a very large majority of cases go down hill. It has been said that the tuberculous woman may have one child with safety; two possibly; three never. That, I believe, is true

DR. S. M. BRICKNER, New York: What is it in the nature of pregnancy which when combined with an active tuberculosis makes for injury to the patient? Is it the increased strain for the support of the woman and infant? Is it the increase in toxemia due to the tuberculosis? Trembley of Saranac Lake has had a larger experience in the observation of pregnant women with tuberculosis than any one else in the world. He has found that about 46 per cent. of his tuberculous women who have become pregnant have died, although he has not stated the time each lived after conception, and 60 per cent. of these pregnant women permitted to go through have died. This would seem to offer an opportunity for the induction of abortion. I would tabulate into three groups patients with active tuberculosis that have become pregnant: 1. There are some in whom no therapeutic measure will offer any relief. That would include those with laryngeal tuberculosis and miliary tuberculosis—women who would be certain to die under all circumstances. 2. A group of patients might possibly be helped by an interruption of the pregnancy—those patients with a moderate infection only, not necessarily incipient, a little beyond the incipient stage, and yet who might by nursing and care and by having an abortion induced, be benefited as to their tuberculosis. 3. There are unquestionably patients, and I have had nine under my observation, who with a moderate tuberculosis can safely be permitted to go through their pregnancy. After all, as has been pointed out by Drs. Minor and Bacon, the question is one of prognosis, and I never would interfere with a woman who was actively tuberculous and at the same time pregnant, without the authoritative statement of an internist or one who specializes in tuberculosis, as to the possible outcome. Even then it may not be possible to prognosticate which woman will go through with safety and which will not. I was glad that Dr. Bacon touched on the question of sterilization.

DR. R. L. DICKINSON, Brooklyn: I have recently had occasion to review the German literature on the effect of the *x*-ray on the ovaries. Much work is being done by the best men and it is the general consensus of opinion that the *x*-ray is of value in this direction. It can be made to shrink an ovary and put it temporarily out of function by a few treatments. In experiments on guinea-pigs the ovary was reduced to one-half the normal size, while the other remained full size. As with the male operator in that line, the sterility is temporary. Further experimentation with dosage and duration may demonstrate that sterilization may be effectively produced by non-operative measures. There is no measure for the woman so simple, however, as vasectomy in the male. There is possibly a method which can be developed to be nearly as simple and quite as effective. I have introduced a sound with a little platinum tip, and produced a cauterization by heat at each corner of the uterus in order to produce a stricture and an obliteration. I have not yet dared to do that on the living woman in order to sterilize, but have done it a few weeks before hysterectomy and have seen that the stricture occurs. I shall sometime in the future show some of these cases and present the method for adoption. As a rule, laparotomy is a very large contract to take just for the purpose of sterilization.

DR. HENRY FARNUM STOLL, Hartford, Conn.: It is a good rule that the woman who has had active tuberculosis should not become pregnant until two years after the subsidence of all symptoms. The symptoms are the important things, not the physical signs. The straining during the second stage should be avoided by the use of forceps. When the forceps has not been used there have been sig of recent extensive dissemination found at autopsy probably the result of rupture of caseous glands due to the terrific strain that takes place when labor follows its normal course. When there is anxiety to have a child, good results have been obtained by the use of tuberculin throughout pregnancy when given by men experienced in its use.

In regard to the time of operation; if the woman has the signs and symptoms of an active tuberculosis, the abortion should be done early; if in the first few months, there is a high percentage of cures (some statistics, I believe, being as high as 90 per cent.); if later, the percentage is less, and

in the third stage, much less. If the pregnancy is allowed to go on until after the middle period, very little can be hoped for as far as the mother is concerned from interrupting the pregnancy. In general, it is better to terminate the pregnancy early than to try to get a living child. In regard to a tuberculous mother nursing the child, the French Society for the Prevention of Tuberculosis reports 250 children removed from tuberculous mothers and in no instance did tuberculosis develop.

DR. J. C. LITZENBERG, Minneapolis: Two years ago in the Schauta clinic there were twenty-two abortions in the women entering the clinic in five months. Von Rosthorn was also of the opinon that certain women with active tuberculosis should have the uterus emptied. One woman came in for the sixth therapeutic abortion. Only then was she sterilized. This opinion was also shared by the men in the medical clinic. We sometimes form opinions and do things when we really do not have the statistics to back them up. Unless they have changed their opinion in two years the clinicians in Vienna believe that every woman with active tuberculosis should in early pregnancy have the uterus emptied. There is an exception made in those far advanced. There is another condition in which operation is done if seen early—those with tuberculosis of the larynx, of whom 100 per cent. die if the pregnancy is allowed to continue.

DR. L. M. GATES, Scranton, Pa.: I do not believe that you can cauterize and be sure that you are doing any thing more than producing a stricture, and you are thereby liable to produce the worse condition of ectopic pregnancy. I would also repudiate the use of chloroform in these cases as being an irritant to the lungs and an injury to the blood. We all know that the use of chloroform increases the amount of blood lost by the patient. The tendency with tuberculous women is to be relaxed, and chloroform is a further relaxant. When labor is over the effect of the chloroform is to cause post-partum hemorrhage. I would not use chloroform in the termination of labor with forceps in these cases.

DR. T. M. BURNS, Denver: It seems to be true that a certain proportion of patients get worse, not because of the pregnancy, but because of the disease. Another proportion get worse because of the pregnancy. Another proportion stay quiescent, and another proportion get better. From my experience in Colorado I do not believe that the internist is capable of saying when we should produce abortion. I know of several cases in which an internist said abortion should be induced but in which the patient went on to labor and was better than before pregnancy. When the patient comes to us in pregnancy, I believe the better way is to watch her and as soon as she starts to get worse, induce premature labor or abortion, by means of two catheters or two bougies in the uterus and gauze tampon or a rubber bag in the vagina. I do not believe this will produce any shock unless an anesthetic is necessary. In many curettements morphin will take the place of ether or chloroform.

DR. H. G. WETHERILL, Denver: I have not practiced sterilization, but it seems to me in view of the very great simplicity of sterilizing the male by vasectomy that the time has come when this simple operation should be considered to prevent pregnancy under these circumstances, rather than an abdominal operation on the woman.

DR. C. S. BACON, Chicago: Whether a woman is cured of tuberculosis and whether or not she dare marry are questions which we must leave to the specialist for determination. I think the suggestion of Dr. Stoll that two years' freedom from the disease is desirable is a good one. The rule given by Martin of one year's freedom from the disease is generally adopted and I had that in mind. I think two years would be still better. I cannot understand how one can advocate inducing abortion on the same patient time after time for this condition. If we are obliged in any particular case because of the special indications to induce abortion we should afterward insist on sterilization. Nothing seems to me more harmful from all sides than a repeated induction of abortion. As to the method of sterilization, of course, these instruments of Dr. Dickinson are interesting but we cannot rely on them at present. We must have absolutely reliable methods. Those who have spoken have assumed an abdominal laparotomy for tubal sterilization. We can do a vaginal celiotomy with much less shock. Some anesthesia may be desirable. The ether anesthesia, as little as we can get along with, is much safer than chloroform. The use of forceps is, of course, not to be recommended in all cases. A symphyseotomy may be done. Under no circumstances should a dangerous forceps operation be undertaken. The same obstetric principles as apply in all cases are to be observed.

INTRADURAL ROOT ANASTOMOSIS FOR THE RELIEF OF PARALYSIS OF THE BLADDER

AND THE APPLICATION OF THE SAME METHOD IN OTHER PARALYTIC AFFECTIONS *

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Any method of surgical treatment which promises relief or cure of a distressing condition hitherto irremediable by any known treatment, medical or surgical, is worthy of close attention and of adoption after its value has been demonstrated. Incontinence of urine and of feces, especially the former, in cases of traumatism causing complete or partial paraplegia is always a distressing condition, and not infrequently one of danger through the probabilities of cystitis and general infection.

We believe that the following case is the first in which the operation of intradural anastomosis of spinal nerve roots (the first lumbar to the third and fourth sacral) has been successfully accomplished, and in only one instance has it, so far as we know, hitherto been tried. The case, as the history will show, was one of severe traumatism at first causing complete paraplegia, including incontinence of urine and feces. In a few months the paraplegia and accompanying anesthesia were largely recovered from, but the patient was left with an absolute incontinence. Eight months after the operation the patient stated that he could dispense with the urinal, which he had hitherto worn constantly, for a period of twelve hours and that with the assistance of pressure over the suprapubic region, partial evacuation of the bladder was possible.

Of course several months are required for physiologic union to take place fully in a case of either peripheral or root anastomosis, but the result in this case so far is most satisfactory. The operation has also shown that no reason exists why nerve-root crossing should not become a valuable addition to our neural surgical procedures, not only for the relief of paralysis of the bladder and bowels of organic origin, but also for obstinate and distressing enuresis of unknown cause. The operation also has a field in some forms of residual paralysis after poliomyelitis and probably in some monoplegias of central or peripheral origin.

REPORT OF CASE

J. S. G., aged 27, married, was a business man who had always had unusually good health until he met with an accident, July 6, 1911. A large gas tank exploded in a shop in which he was at the time. He was thrown some distance with much violence and was rendered unconscious, remaining

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

so for five or six hours. He was taken about thirty or forty miles to a hospital.

He had lost power in both lower extremities. Immediately after the accident his feet were very sensitive to pressure, so much so that it was impossible for him to have his stockings put on. His bladder and bowels were paralyzed. He had to be catheterized for four weeks. He gradually improved, especially as regards power in his lower limbs, but certain very positive conditions remained when he was first examined by us. The loss of power in his lower extremities showed itself then simply in an inability to lift himself and stand on his toes and fore part of his feet, the impairment being therefore chiefly in the calf movements.

His bladder continued paralyzed and in consequence of this he had absolute incontinence, and he had also developed some cystitis. His bowels were torpid, although not so bad in this respect as at first. When they were opened by the use of a cathartic he could not fully control the evacuation.

About a week after the accident he suffered much pain in his back. This disappeared; and he had not had any shooting pains or girdling pains along the spinal column. He had no reflex spasms or jerkings in the lower extremities.

Several examinations gave the following results: Station and gait were good. In attempting to stand on the toes and fore part of his foot he had evident difficulty, although able to perform these movements. For a long time, as above indicated, he was not able to stand in this way at all. Examination of separate movements of the foot showed that he could abduct, adduct, dorsal flex, plantar flex and perform movements of all possible description on the ankle. The

Figs. 1 and 2.—Areas of impaired sensation on sole and dorsum of left foot.

power to elevate the heel was slightly impaired. Extension and plantar flexion of the great toe and other toes were preserved. All movements of the leg on the thigh and the thigh on the abdomen were preserved and well performed. Knee-jerk on the right was present and normal; on the left it was much impaired and sometimes absent. Both ankle-jerks were absent. His great toes remained in a slightly extended position but no Babinski response was obtained, and indeed no reflex whatever was obtained on both dull and sharp stimulation of the sole. Examinations for touch, pain and extreme heat and cold showed that these forms of sensation were lost over the sole of the left foot except on an area of its inner aspect, the same being true of the dorsum of the foot, except along its inner border (Fig. 1). The areas of impairment reached about as high as the internal malleolus. On the right foot similar areas were impaired, but impairment or loss was more marked over the toes (Fig. 2). Callus on the dorsum of the right foot at the metacarpophalangeal articulation had been present, according to the patient, since he began wearing shoes after the accident. Sensation was lost over the right buttock and thigh, in an approximately saddle-shaped area, which gradually decreased in width to its termination an inch or two above the popliteal space. On the left a somewhat similar area was present but was narrower and shorter, reaching only to a point just below the gluteal fold (Fig. 3). The scrotum was also anesthetic. An impairment of sensation was present in the coccygeal and anal region

A study of the areas of anesthesia indicated that the nerve roots or segments of the cord involved were, for the feet, the fifth lumbar and first sacral, and for the buttock, scrotum and anal region, the second and third sacral, probably the fourth and possibly the fifth.

The patient's greatest distress was by far that which resulted from the paralysis of his bladder, with distention and overflow. He constantly had to wear a urinal. He thought that the power to expel the urine had not improved but the inability had probably increased to some extent, while in other respects he was conscious of much improvement. His sexual powers were practically abolished. His feelings of numbness in the feet, and his weakness in trying to stand on his toes he was sure were decidedly less, continuous improvement having taken place. He expressed himself as being quite able to stand all his other afflictions if he could only get rid in whole or in part of the distressing bladder trouble.

The patient was admitted to the hospital of the University of Pennsylvania for further investigation. Roentgen-ray examinations were made by Dr. H. K. Pancoast, who reported a fracture of the right half of the first lumbar vertebra.

After much consideration of the subject with the approval of the patient's brother, who was a physician, and with the urgent approval of the patient himself, it was determined to try to anastomose the twelfth thoracic or the first lumbar root to the third and fourth sacral roots. It was recognized that nerve anastomosis offered the only hope for the patient's relief and as this was anatomically impossible outside of the vertebral canal, it was thought that it might be accomplished intradurally.

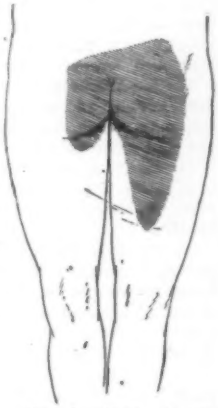

Fig. 3.—Areas of impaired sensation on back of the thighs.

The operation was performed by Dr. Frazier, Feb. 29, 1912. The following were the notes made by him at the time of the operation and the subsequent hospital records:

Laminectomy — Intradural Anastomosis of the First Lumbar and Third and Fourth Sacral Roots.—Through a curved incision a cutaneous flap was reflected and the spinous processes and laminae of the twelfth thoracic and first and second lumbar vertebrae were removed. Evidently there had been a fracture of the second lumbar vertebra, as several fragments were found quite loose and readily detached. The dural sac seemed unusually distended, and when it was opened a considerable quantity of cerebrospinal fluid escaped (from 1 to 2 ounces), even though the patient was in the reversed Trendelenburg position with the level of the head considerably below that of the pelvis. Inspection of the cord revealed no evidence of injury. There were no adhesions, no areas of softening, in fact no abnormality that could be detected with the naked eye. After consultation with Dr. Mills, I decided to carry out the plan which we had considered carefully before the operation and had submitted to the patient's brother. It was intended to effect an anastomosis between the twelfth thoracic and third and fourth sacral nerves intradurally.

With the assistance of Dr. Edward M. Williams, using a unipolar electrode, the other, a large pad electrode, being closely applied to the shoulder of the same side, the twelfth thoracic and the first lumbar were stimulated within the dural sac, and the one distinguished from the other by the fact that the contractions in the case of the twelfth thoracic were confined altogether to the trunk and abdominal muscles, while in the case of the first lumbar they were associated with contractions of the extensor group of the thigh. Attention was then turned to the conus for the purpose of identifying the third sacral root. What was taken to be the second sacral was first picked up on a blunt hook, and its faradic stimulation

was followed by contractions only of the big toe on the affected side. On the ground that we were dealing with the second sacral, the next two nerves adjacent to it and to the inner side were selected for the anastomosis. As it was found by measurements that the twelfth thoracic, even if divided extradurally from its point of exit from the canal, would not reach the conus, it was decided to use the first lumbar. The latter was divided extradurally at its exit from the spinal canal and brought within the dural sac through a transverse incision in the dura. An end-to-end anastomosis was effected by a single No. 1 Chinese silk suture.

After the nerves had been identified by faradization, pads saturated with a 4 per cent. stovain solution were kept applied to the cord in order to block, if possible, any harmful impulses.

Toward the latter part of the operation the patient's respiration became very shallow and feeble, but on changing his position to his side and resorting to moderate stimulation, normal respiratory function was promptly restored. The dura was closed with a continuous silk suture, and the musculoaponeurotic layer with buried catgut sutures. The usual cigaret drain, together with a small wick of iodoform gauze, was introduced through a stab wound down to a point of bleeding from the vertebral veins.

The operation was necessarily long and tedious, but at no time were any special difficulties encountered, except in one instance when a vein was divided at the time the first lumbar root was cut. This was followed by quite free bleeding, readily controlled, however, by a tampon.

The identification of the various roots was simpler than had been anticipated. The anastomosis was effected on the left side only, where the sensory evidence indicated less injury to the cord or nerve roots.

On March 4, 1912, the patient complained of deep-seated pain in his thigh, making him gasp. His ankle felt stiff and sore. He thought also he could feel urine accumulating in the bladder.

On March 11, 1912, Dr. Mills examined the patient without moving him from a recumbent position. Flexion, extension and other movements of the thighs were good and all the movements of the feet and toes were present, these having been tested in detail; the only weakness shown was in dorsal flexion and abduction of the right foot, this being only a partial loss. The knee-jerks were absent and there was no Babinski response on either side. Slight plantar flexion of the toes occurred on plantar stimulation.

Tactile sensation, tested by light touch of the finger, was everywhere preserved on the feet and legs below the knees. Pain sense tested by pricking was defective in definite similar areas on both sides. It was lost on the soles of the feet except the inner side about the hollow of the foot half way between the roots of the toes and the heel. On the dorsum it was lost entirely on the inside over all the toes. In a linear area from the metatarsophalangeal articulation three or four inches toward the instep, about the instep and toward the internal malleolus, this area of retained sensation was enlarged. On the outside of the foot a tongue of analgesia extended an inch or two above the ankle. As we were unwilling to move the patient at this time he was not examined over the buttocks, thighs, etc.

On March 27, 1912, the patient was discharged. He felt distention of the bladder on the introduction of 10 ounces of boric solution but he did not feel less amounts of boric solution or of urine.

As stated at the beginning of the article, eight months after the operation the patient could dispense with the urinal, which he had hitherto worn constantly, for a period of twelve hours, and with the assistance of pressure over the suprapubic region, partial evacuation of the bladder was possible.[1]

NERVE SUPPLY OF THE BLADDER

According to Frankl-Hochwart,[2] whose monograph on the "Nervous Diseases of the Bladder" is among the most reliable and most recent (1906), the bladder has two or three sources of supply. In the first place it has a supply through the sympathetic nervous system. Efferent nerves pass by way of the rami communicantes from the upper lumbar segments of the cord according to Langley and Anderson (at least in the cat). These take their course through the lumbar sympathetic to the inferior mesenteric ganglia. From these inferior mesenteric ganglia three gray hypogastric nerves penetrate the muscles of the bladder. Another sympathetic supply is from the upper sacral segments and roots. These nervi erigentes go to the hypogastric plexus. From this plexus, according to Griffith, the fibers pass in three layers, one to the fundus, another to the anterior part of the bladder and around the neck, and the third to the vesical part of the urethra.

In the human being, according to Frankl-Hochwart and Russian and other authorities with whom he agrees, the somatic nerves to the bladder are from the third and fourth sacral segments and roots.

Kilvington[3] has published the only article on nerve crossing within the spinal canal with which we have become acquainted. In this article he first briefly discusses the fact that regeneration does not take place within the spinal cord, referring to the well-known fact that it seems to be necessary for the primitive sheath to be present in order that such regenerative processes may proceed. He then affirms that such regeneration may occur when nerves are united either intradurally or extradurally within the vertebral canal.

Experiments were made on several dogs in order to test the possibility of bringing about restoration of the functions of the bladder and rectum through nerve crossing and subsequent regeneration. Attention is called to the facts shown by various physiologists, as Langley and Anderson and Sherrington (cited by Schäfer[4]) that in the dog the nerve-supply to the bladder and rectum is chiefly from the second and third sacrals and sometimes from the first sacral and even the seventh lumbar. According to Kilvington the second and third sacral nerves always give bladder contraction sufficient to expel the contents, although the first sacral in a few cases gave bladder contraction, but not enough to cause micturition.

Kilvington's instructive experiments on three large dogs and their results are recorded by him in detail. In his summary of these experiments he concludes that it is shown that the last lumbar, when joined to the second and third sacral roots, on electrical stimulation can produce all the effects which the latter give on the untouched side.

After Kilvington had determined by investigation on the cadaver the feasibility of intraspinal root anastomosis in man, Mr. Bird at his suggestion attempted the operation in one case; this operation proved unsuccessful because of conditions found after the laminectomy.

In his experiments on dogs Kilvington in two instances anastomosed both motor and sensory roots (a mixed nerve in effect) to motor and sensory roots below. In another experiment he crossed the anterior or motor root above with both sensory and motor roots below. In the case recorded in this paper we anastomosed a motor root above with a motor and sensory root below.

Certain disadvantages might arise from mixed anastomoses. It is doubtful whether in the surgical procedure the motor root above could be properly apposed to the motor portion of the mixed nerve below. Again,

1. The patient has reported once since the presentation of the paper—in June—that he is now able to retain urine for two and a half hours at a time and that the expulsive power of the bladder seems a little greater than at the last report.

2. Frankl-Hochwart, V., and Zuckerkandl: Die nervosen Erkrankungen der Harnblase, Wien, 1906.

3. Kilvington, Basil: An Investigation on the Regeneration of Nerves, with Regard to Surgical Treatment of Certain Paralyses, Brit. Med. Jour., 1907, i, 988.

4. Schäfer: Physiology, ii, 342.

if an anterior root, as in one of Kilvington's experiments, were crossed with both sensory and motor roots below, the only physiologic result, if the procedure were successful, would be the transfer of motor impulses. A motor root of one distribution might physiologically as well as anatomically unite with a motor root belonging to another segment of the cord, but it is doubtful whether a motor root would physiologically combine with a sensory root even if they were brought into physical union.

A sensory root may be combined anatomically and physiologically with a sensory root of its own sort, but it may be questionable whether a somatic sensory root will serve to take the place of a destroyed visceral sensory nerve.

Our idea in this operation was to perform an experiment in anastomosis for the relief of the paralysis of the walls or sphincter of the bladder, or of both, similar to that which has been performed extravertebrally in cases of poliomyelitis, traumatic severance of peripheral nerves and other paralyses. The bladder is a muscular organ with a motor nerve-supply, which in large part at least is similar to that of muscles everywhere in the body, although it does in part, as has been shown, receive its innervation through the sympathetic nervous system. By uniting a motor root which is a part of a healthy reflex arc with the motor root of a destroyed sensorimotor region of the cord, both the sensory and the motor portions of the intact arc are utilized. In addition the muscles supplied by the first lumbar nerves in the human subject probably have some accessory value in bladder function.

VENTRAL ROOT ANASTOMOSES

Cervical	Above			Below				Opposite		
	Cervical	Dorsal	Lumbar	Cervical	Dorsal	Lumbar	Sacral	Dorsal	Lumbar	Sacral
5	..	.....	.....	6*	..	.....	.....	.....	.....	.....
6	5	.....	.....	7‡	..	.....	.....	.....	.....	.....
7	6	.....	.....	8§	..	.....	.....	.....	.....	.....
8	7	.....	.....	..	1†	.....	.....	.....	.....	.....
Dorsal										
1	7*, 8	.....	.....	..	2	.....	.....	1*	.....	.....
2	8†	1	.....	..	3	.....	.....	1‡, 2, 3*	.....	.....
3	..	1, 2	.....	..	4	.....	.....	1, 2, 3, 4	.....	.....
4	..	1, 2, 3	.....	..	5	.....	.....	1*, 2, 3, 4, 5	.....	.....
5	..	2, 3, 4	.....	..	6	.....	.....	2, 3, 4, 5, 6*	.....	.....
6	..	3, 4, 5	.....	..	7	.....	.....	3, 4, 5, 6, 7*	.....	.....
7	..	3, 4, 5, 6	.....	..	..	.....	.....	4, 5, 6, 7	.....	.....
8	..	5*, 6, 7	.....	..	..	.....	.....	6, 7, 8	.....	.....
9	..	6*, 7, 8	.....	..	..	.....	.....	7, 8, 9	.....	.....
10	..	8, 9	.....	..	..	.....	.....	8, 9, 10	.....	.....
11	..	9*, 9, 10	.....	..	12	.....	.....	8, 9, 10, 11	.....	.....
12	..	8‡, 9, 10, 11	.....	..	..	1	.....	9, 10, 11, 12	1	.....
Lumbar										
1	..	8, 9, 10, 11, 12	.....	..	..	2, 3, 4	.....	10, 11, 12	1, 2, 3, 4,* 5	1, 2
2	..	11, 12	1	..	..	3, 4, 5	1, 2, 3	11, 12	1, 2, 3, 4, 5	1, 2
3	..	11, 12	1, 2	..	..	4, 5	1, 2, 3	11, 12	1, 2, 3, 4, 5	1, 2, 3
4	..	10, 11, 12	1, 2, 3	..	..	5	1, 2, 3	10, 11, 12	1, 2, 3, 4, 5	1, 2, 3
5**	..	9*, 10, 11, 12	1, 2, 3, 4	..	..	.....	1, 2, 3	10, 11, 12	1, 2, 3, 4, 5	1, 2, 3

* Barely.
† Easily.
‡ Just.
§ Readily.
** 11 cm. in length.

PRACTICAL SUGGESTIONS

We have discussed the physiologic problems involved in the reestablishment of innervation to the muscles of the bladder, and the operation as performed has been described. Such features as apply only to matters of technic remain to be considered. There is little doubt as to the advisability of a bilateral laminectomy when the identification of roots requires ample exposure and when, as in future cases, we would expect to effect anastomoses between the roots on both sides. It is often difficult to determine the exact position of an individual vertebra, so that in the future we would make sure of this before the operation by having a radiograph taken with a lead strip over what was believed to be the first lumbar vertebra. This would enable the operator at once to be able without the use of the electrode to identify the first lumbar root which leaves the vertebral canal in the foramen between the bodies of the first and second lumbar vertebrae. Therefore the identification of the third or the fourth sacral root would alone remain, and this could be done with any degree of scientific accuracy only by the use of the electrode, as the massed roots composing the conus could not otherwise be distinguished one from the other. It was suggested by Dr. E. M. Williams at the time of the operation that with the bladder filled with boric solution and a small manometer connected with the catheter, stimulation of the third and fourth sacral roots would be followed by an expulsive effort on the part of the extrusor muscles of the bladder which would readily be recorded on the manometer. This is an excellent practical suggestion and will be taken advantage of at the next operation. No difficulty should therefore be experienced in the future, in promptly recognizing the roots to be used in the anastomosis, and needless to say the anastomosis should be effected on both sides and not on one only, as in the case reported.

The principles involved in suturing the divided roots in no wise differ from those which have been laid down for anastomosis of peripheral nerves; it should always be borne in mind that extreme gentleness, the avoidance of trauma, the employment of proper suture material, absolute hemostasis, and the absence of infection are essential to success.

It would be out of place here to discuss in detail the technic of the preliminary laminectomy. It will be sufficient to emphasize two points which we regard as of importance in minimizing the risks of operation. In the first place, we have found the method of administering the anesthetic by intratracheal insufflation to possess great advantages over the drop method not only for safety but also for convenience. We place the patient in these operations in the prone position with the table elevated to an angle of 45 degrees from the waist to the foot, and with the trunk and head in the reversed Trendelenburg position. This position is convenient for the operator and at the same time through the influence of gravity prevents the continuous outflow of cerebrospinal fluid. It is a well-known fact that in prolonged operations when the patient is in the prone position (face down), the respiratory apparatus seems to wear out more readily, and under ether anesthesia proper oxygenation of the blood is interfered with. The use of intratracheal insufflation entirely overcomes this diffi-

culty and an even state of anesthesia is preserved, with adequate oxygenation whether or not the respiratory function becomes fatigued.

The second point to which we refer has to do with the harmful influence of the manipulation of the roots incidental to their identification, isolation, division and suture. There is no doubt that the mere manipulation of the roots originates afferent impulses which of themselves have a harmful influence on the vasomotor system. To break this influence and thereby prevent shock-producing tendencies, we have been in the habit of establishing a block by applying 4 per cent. stovain solution to the cord just above the site of our manipulations. These two points we feel assured are worthy of consideration in rendering an operation, which we believe should be without fatality, free from any immediate depressing influences.

Leaving aside these essentially practical considerations, we may enter for a moment into the purely speculative field. That physical union between the first lumbar and third sacral roots may be effected within the dural sac has been demonstrated on the living subject, and its application to residual paralyses of the bladder following cord lesions discussed. The question at once suggests itself as to whether or not this operation may not be applicable to paralyses of other groups of muscles and we have determined from observations on the cadaver that those anastomoses may be considered possibilities which are indicated in the accompanying tabulation.

From this table it is readily seen that in the roots which go to make up the brachial plexus it would be possible to effect an anastomosis only between the root immediately above and the root immediately below either the fifth, sixth, seventh or eighth cervical. In the case of the first thoracic root, an anastomosis could be effected with the seventh or eighth cervical above and the first thoracic on the opposite side, and in the case of the second thoracic with the eighth cervical and first thoracic above and with the first, second and third thoracic on the opposite side. In cases of injury to the cord involving the seventh or eighth cervical segments with resulting paralyses it would be possible to innervate the roots from these segments with the first thoracic.

The farther down the cord one goes the longer is the distance from the point the root is given off the cord to its point of exit from the canal, and the more the roots overlap one another. When we come to the lumbosacral region we find that the ventral roots lend themselves to innumerable possibilities of anastomosis with roots above or below and even with roots on the opposite side. It would seem quite within the range of possibility in a case of unilateral infantile palsy of the lower extremity to be able to innervate the root of the paralyzed group with a root that might be spared from the same or the opposite side, as has been suggested earlier in the paper.

In the paralyses of the bladder and rectum following trauma, however, we have perhaps the most important indication for this intradural operation, not only because of the patient's otherwise hopeless condition, but because those so afflicted are utterly miserable and their lives are shortened by the infection of the kidneys which sooner or later follows the inevitable cystitis. If this new plan of procedure had no other application than for the relief of the vesical palsy it would still have a wide and important field. That it is based on a reasonable hypothesis has been proved by experimental observations on the lower animals; that it is a justifiable risk no one will gainsay; that it gives promise of attaining its object has been demonstrated by the fact that our patient has already gained some control of the bladder. Owing to the comparatively short time which has elapsed between the time of the operation and the present, this contribution takes on the nature of a preliminary report. We therefore submit it as such for consideration and discussion.

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PREDEMENTIA PRÆCOX *

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When, in 1907, Jelliffe published his admirable paper on "The Signs of Predementia Præcox: Their Significance and Pedagogic Prophylaxis,"[1] he was not directing attention to a newly discovered mental condition. We were all familiar with the fact that dementia præcox frequently developed in a soil which had apparently been prepared to receive it. The chief merit in his paper lay in the great hopefulness with which he treated the subject and I know that he instilled in me a less pessimistic view of early cases of dementia præcox.

It is generally admitted, I think, that dementia præcox may occur in an individual who is predisposed by defective development, or, it may occur in a normal, or even exceptionally brilliant, person after some physical stress, such as typhoid. To denote these conditions De Sanctis has proposed the terms "comitans" and "subsequens." In Dr. Jelliffe's paper the impression is given that for those predisposed to dementia præcox the education must be especially planned to develop, by means of industrial occupation, the senses rather than the intellect, yet this should not be overdone in such a way that the child does not receive what may be termed a normal education.

In a more recent paper[2] he states that when a patient shows an inability to bring himself in touch with the physical world, with a constitutional aversion to dates and a glorification of vague abstractions, it is justifiable to regard the child or youth as a patient, to advance his level and to train him to be interested in his small demands so that he may be saved the necessity of meeting greater demands than his capacity will bear. He also characterizes these patients as being brilliant and interested in inward rather than in outward fields. They lack all manual dexterity; they lack the adaptability to uncongenial environment, not the environment of personal comfort, but the environment of common minds. Fits of abstraction are very common.

Space does not permit further quotation from this excellent paper.

Expressing the same fact in other words we may say that predementia præcox is an early stage of dementia præcox, and it is the time when the possibility of arrest of the disease is greatest.

Usually an "outbreak" of some sort directs the attention of the family to the fact that there is something wrong with the patient and, after a period of care by the family physician, who, as a rule, lacks the necessary

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Jelliffe: Am. Jour. Med. Sc., 1907, cxxxiv, 157.
2. Jelliffe: Predementia Præcox: The Hereditary and Constitutional Features of the Dementia Præcox Make-Up, Jour. Nerv. and Ment. Dis., January, 1911.

experience to care for the patient properly, the specialist is called in and institutes proper treatment, but only after valuable time has been lost.

I freely admit that the diagnosis of these cases may be very difficult, and it may be necessary to have a number of examinations of the patient before one can come to a positive conclusion.

It may be of interest to state that I have found a very much abbreviated association test to be of considerable value in making a differential diagnosis. A patient suffering from predementia præcox may show no delay in reaction time to the ordinary interrogatory, but will show an increase to the ten or twenty-five words which I ordinarily use, and the character of the association is usually such as to indicate that the intellectual ability of the patient is less than might be supposed from ordinary conversation. In this abbreviated test I only occasionally interpolate significant words.

Important as this predementia præcox group is from a curative standpoint, I believe that we should go still farther and care for these patients earlier and with better results.

The patients whom we have been discussing have attracted the attention of some one because they have shown a mental symptom. It may have been slight, but it has been positive. If it is possible—and I believe that it may be—to recognize these predisposed persons earlier, then we may lessen the later intellectual deterioration which is bound to occur if mental overwork is allowed.

At the last meeting of the Section on Nervous and Mental Diseases at Los Angeles, Dr. Ross Moore read a very suggestive paper, entitled "The Recognition of the Preneurasthenic and Pre-Insane Condition in the Young."[3] In the beginning he states two problems: First, does neurasthenia develop on a neural soil which should be recognized as such in early life? Second, are there certain types of children that furnish victims of insanities, of the dementia præcox or manic-depressive and hysterical groups which are clear enough to be described and recognized?

He isolates three distinct types which he calls the preneurasthenic, the preemotional and predements. The latter are the mental shut-ins, who, being physically well built, are apparently happy and care-free, yet often carry a hazy and terrifying knowledge of their own apartness from their associates. They have power to follow out their natural aptitudes with brilliancy, thereby covering up defects in their reasoning power and intellect, which may be immense.

The key to the last is internal strife, just as the key to the preneurasthenic type is fatigue and the key to the preemotional type is instability. This last type is the group which he believes is most likely to become cases of manic-depressive insanity. He believes that these three types of children can be studied so that the teachers and family physicians may learn to recognize them as they now do the more grossly abnormal child.

All of us know children who have done well in their studies up to a certain point and have then rather abruptly shown a falling off in their marks, and the more active mental symptoms have followed.

It being generally agreed that dementia præcox frequently occurs as an immediate sequence to mental overwork, the question as to how this may be prevented naturally arises. The person who has the best opportunity to observe that the pupil is not doing as well as his normal and who first sees the various emotional abnormalities which occur at the same time is the teacher.

Under ideal conditions each school should have connected with it a physician and a psychologist who has been especially trained for this sort of work, of which, I regret to say, there are comparatively few at the present time. The duties of these two should be the oversight of the physical and mental welfare of the pupils. The psychologist should test each pupil with the Binet scale as soon after admission as possible to determine his mental status, and so more accurately to place him than is possible for the teacher, who has quite enough duties and responsibilities at present. From time to time these tests should be repeated in order to determine accurately the progress that the child is making. This will afford a fairly positive check on the pupil's advancement, and a conference with his teacher will determine the advisability of letting him advance slowly or rapidly.

It is quite probable, however, that a number of cases may slip by the psychologist. We all know that dementia præcox patients respond to mental tests very well at the time of examination, when under more continuous observation their mental deficiency is apparent. Therefore, when the teacher sees that a pupil is falling behind his standard she should refer the child to the psychologist who may earlier determine the symptoms of mental overstrain than if he waited until he made his usual routine examination.

It is assumed, of course, in this discussion that all physical causes of mental dulness, such as defective eyesight or hearing, hypertrophied adenoids and tonsils, etc., have been eliminated by the school physician.

It has been my good fortune during the past winter to be associated with Dr. E. B. Huey, recently of the Illinois Training-School for Feeble-Minded Children, who is one of the most expert men in the use of the Binet scale in this country. While I have had but little opportunity to familiarize myself with the scale by personally applying it, I have seen a sufficient number of patients tested by Dr. Huey to make me realize what a valuable means of examination it is, giving as accurate a determination of mental ages as is possible. In a number of cases Dr. Huey has tested the patient by the Binet scale and I have tested him by other methods with the result that we have agreed quite closely and I believe that Dr. Huey's results have been more accurate than mine, especially in children. It must be remembered, however, that the Binet scale does not extend beyond thirteen years and that there are a number of cases in which we need to go farther. Perhaps, in time, the scale may be extended. It undoubtedly will be if any such ideal plan as I have sketched ever comes to pass. Yet in the Binet scale we have a means of recognizing mental defect earlier than is possible with most of the methods of mental examination that are in use. By this means the mental strain which so often occurs in the slightly defective cases is checked, thus preventing an attack of dementia præcox.

Probably each one of us knows individuals whom, while we do not class as mentally abnormal, yet we consider as slightly defective. Individuals who are fitted to occupy subordinate positions fairly well, but who are sometimes forced by circumstances to hold unsuccessfully a position of responsibility. And we have all seen such an individual suffer a mental breakdown when responsibility has been thrust on him or his ambition has forced him to strive to attain an intellectual level for which he is unfitted.

3. Moore, R.: THE JOURNAL A. M. A., Dec. 23, 1911, p. 2079.

Predementia præcox is a condition which may also be acquired by faulty mental habits, and the close study of the school child which I have advocated will not be half so efficacious if cognizance is not taken of his emotional control and his attitude toward his associates and the world in general.

It seems unnecessary to point out how great a factor in the making of a better nation may be the training of the individual to fit into the place in life which he can most ably fill. A half moment's thought will convince you of it more clearly than I can with half an hour's talk.

The psychiatrist rarely sees these early cases. The teacher is the first one to observe them, the general practitioner comes second, perhaps the neurologist third, and the psychiatrist usually after symptoms are well advanced and the patient is suffering with an acute mental attack. At times, however, a case comes under our care during the prodromal period of an acute attack and we may be so fortunate as to abort it. After the acute attack much may be done by reeducation, especially along the lines of manual training of various sorts, and we are able to make something of the patient, even if less than he would have been had he not suffered his attack. Did time permit I could give numerous case-histories illustrating the value of reeducative methods, but, as it is, I can only refer you to the few objects which are on exhibition to illustrate this point more strikingly.

CYANOSIS IN DEMENTIA PRÆCOX *

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The trend of recent studies in dementia praecox has been toward the physical manifestations of the disease. The earlier writers concerned themselves mostly with the mental sphere and would make their diagnosis chiefly or solely on mental symptoms. But of late, independent of the psycho-analysts and those who urge a more or less strictly psychogenous origin, investigators of another and more material group, working from a physical point of view, have brought to light an array of clinical and objective signs which seem to be of great diagnostic importance, and will eventually, it is felt, assist in determining an etiology in this disease, the frequency and sociologic importance of which is only beginning to be appreciated by the general medical profession.

Omitting the pathologic and biochemical findings, the clinical signs of recognized value are: alteration in the deep tendon reflexes, increased at first, diminished or absent in late stages; irregular pulse, rapid in some instances, in others markedly slowed; excessive salivation, and variations of temperature, subnormal in some cases, elevated often in acute stages. Considerable work has been done on the ocular symptoms, among the most interesting being that of Tyson and Clark,[1] who report an "eye syndrome" peculiar to dementia præcox, embracing concomitant changes in the disks, pupils, visual fields and corneal sensibility. Others have called attention to the pupillary phenomena, consisting of abnormalities in size, outline and light reaction. In acute phases dilatation is frequently seen and in late stages a contracted, sometimes spastic pupil with inequality, irregular outline and ragged edges. Changes in the light reflex are frequently observed, especially in the terminal stages. Still others have described abnormalities in the skin, including hyperhidrosis, subnormal temperature, altered dermatographia and cyanosis. It is with cyanosis in particular that this paper is concerned.

A cutaneous cyanosis occurs in a number of diseases quite distinct and independent of that under consideration. It is observed in apparent health under transitory vasomotor conditions, but its frequent presence in dementia præcox without cardiac involvement would suggest that we have in this a sign but little less than pathognomonic. My interest in cyanosis began in the daily morning clinics at Danvers where patients are presented for diagnosis. The cyanotic hands of dementia præcox patients are in marked contrast to those of patients with other mental diseases, and inspired an investigation which has convinced me that cyanosis is a highly valuable diagnostic sign, especially when taken in connection with other symptoms of the malady.

During the past year 241 patients with dementia præcox, embracing all types and stages, were examined, and 78 per cent. were found to have some grade of cyanosis, from a mild degree to an extreme dusky purple. The distribution varies, being usually most marked over the dependant parts, yet the skin as a whole often has a bluish appearance, more noticeable in the upper back. The relative frequency of involvement of the hands, feet and back is as 9 : 6 : 5. Some patients may show cyanosis of the feet when there is none on the hands, and vice versa. Occasionally the face and lips present the most involvement. Cyanosis varies in the same patient from day to day or week to week. It may be absent one day and quite evident the next; this seems relatively independent of the surrounding temperature and the position assumed. The severest grade of cyanosis has been observed in a patient confined to bed. With respect to the three subgroups, in cases in which it was possible to make a subdivision, the catatonic form showed cyanosis in 90 per cent., the hebephrenic in 75 per cent., and the paranoid in 50 per cent. This was also the relative order of the intensity.

It seems that the grade of cyanosis carries some prognostic significance. The cases deeply cyanosed apparently dement more rapidly and deeply. Acute catatonic excitement with marked cyanosis forecasts grave danger of collapse and death. From the point of view of differential diagnosis, cyanosis offers help when assistance is often badly needed, in differentiating dementia præcox from manic-depressive insanity. It is believed that cyanosis is exceptional in the latter disease, and in thirty cases including depressed, mixed and excited phases only two showed it; in one, a depressed case, it was well marked, and in the other, a hypomaniacal case, fairly so. But without doubt, the skin in a manic-depressive has quite a different appearance from that of a precocious dement. Without having the figures to demonstrate, I also believe that cyanosis is of help in differentiating imbecility from dementia praecox, the skin of the imbecile being clear, except when the two psychoses are combined. Two cases might be cited as instances in which the presence of cyanosis helped to revise an earlier diagnosis. One patient, a woman of 35, at first appeared to be in a depressed phase of manic-depressive insanity, but later other symptoms cast doubt on this, and the additional development of a marked cyanosis pointed the way to a dementia præcox which

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Tyson and Clark: The Journal A. M. A., May 2, 1908, p. 1415.

the clinical course of the case confirmed. The other case, that of a woman of 37, was provisionlly diagnosed as paresis; the Wassermann reaction in the serum was reported suggestive but the cytologic examination of the spinal fluid was negative. Later the presence of a marked cyanosis combined with impulsivity and other symptoms led to a reconsideration of the case and to a diagnosis of dementia præcox.

What is the nature of this cyanosis? First of all, it does not seem dependent on blood-pressure, as the various investigators of blood-tension in dementia præcox have not reported any departure from normal. In twenty-five cases which I have studied the average systolic pressure was 115 for a sitting position and 95 for a reclining position, the markedly cyanosed cases showing no variance from the average. We know that we are at least dealing with a vasomotor phenomenon. In this respect it is interesting to refer again to Tyson and Clark's paper.[1] Their most frequent finding was a congestion of the disks, due to dilatation of the veins, and this is certainly analogous to the cutaneous phlebostasis. The ocular syndrome of Tyson and Clark seemed to them somewhat similar to the toxic amblyopia of tobacco and alcohol and led them to the opinion that some sort of toxin, metabolic in nature, was the pathogenic agent, and that this toxin was primarily a vascular poison which led slowly to degeneration of the nerve elements. The conclusions of Pighini[2] are somewhat different. He believes that in the acute stages there is a destruction of nucleoproteins induced by some unknown morbid agent, and that it is not a typical toxic or destructive process such as seen in ordinary febrile diseases. To account, furthermore, for the skin condition in dementia præcox, there must be some interference in the skin reflex arc with more or less disturbance of the vasomotor nuclei which Sano[3] locates in the anterior horns of the cord, but which are located elsewhere, chiefly in the sympathetic, by others. The dermatographic reflex would indicate that there is indeed some alteration in the vasomotor innervation, for as a rule this reflex is much diminished and occasionally absent. In fifty-five cases studied for this point 60 per cent. were found to have a diminished reflex.

SUMMARY

A cutaneous cyanosis is found in a large majority of dementia præcox cases most frequently and intensely in the catatonic form, next in order in the hebephrenic and then the paranoid.

It is part of a generalized vasomotor disturbance consisting in a phlebostasis, of unknown origin.

Cyanosis is variable within large limits even in the same patient.

Cyanosis offers a valuable diagnostic sign in differentiating dementia præcox from manic-depressive insanity, imbecility, hysteria, constitutional inferiority and occasionally the organic psychoses.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. DUNTON AND CORNELL

DR. M. NEUSTAEDTER, New York: I have had occasion to examine backward children in New York schools for twelve years. I find that the physical defects in these cases are less numerous than in the very best children in the schools, and they are not prone to have their defects corrected. So far as I remember in over 1,200 cases, 2 per cent. have corrected the physical defects, and yet with a properly corrected diet and elimination of drugs and narcotics, such as tobacco, coffee and tea and alcoholic stimulants, we have achieved very good results. I have followed them in the workshop and I have come to the conclusion that it is not manual labor alone that is required for improvement; it is the geographic and social environment of the child that counts more than anything else. If we could take the child from the busy city into farm and country life and give him different ideal surroundings with proper diet, we could do much more for him than by using all the subtle scientific methods in the public schools exclusively in big cities.

DR. B. R. TUCKER, Richmond, Va.: We see reference to seclusion in the predementia stage, and reference to a child being asocial. We should draw a line of demarcation between a child who wants to play but does not enter into the games and occupations of childhood because of bashfulness, which may not overstep the normal line, and the child who is asocial and primarily does not want to enter into the occupations of childhood. I have seen children who have been suspected of dementia praecox or some other mental disturbance simply because they were bashful.

DR. L. HARRISON METTLER, Chicago: The percentage of dementia praecox cases admitted to the asylums throughout the country has been estimated to vary from 15 to 45. This wide variation cannot be satisfactorily accounted for on the basis of a geographic distribution or a difference of diagnostic ability. It indicates a fundamental weakness in our conception of dementia praecox. It would be of the highest practical value if we could discover and establish some physical signs by which we could recognize, or assume, a definite pathologic change in these individuals. In diagnosing dementia praecox, in all of its forms, I find myself leaning more and more on physical results of psychanalysis. What is a defective child? Apparent and real defectiveness are often hard to differentiate. The distinction may depend on the relative state of the examiner's own intelligence and mental state. Suppose a child is a little backward, unsocial, selfish, and of a quick temper; may this not have been the result of bad training, environment or social injustice? Ignorance, both gross and subtle, is so widespread, it seems to me that it, more than organic defectiveness, can be invoked to explain in many cases the traits that are being given to us by overenthusiastic investigators as evidences of such defectiveness.

Granting that we can, along certain coarse lines, diagnose the defective child, what shall be the mode of its training? Manual training is just now in high vogue for such cases, and for most of them I have no doubt it is the proper thing. Manual training, however, is not a panacea or antidote for mental defectiveness. I have seen instances in which I thought the recommendation of manual training was evidence of more mental defectiveness in the adviser than in the subject. Suppose a child has certain marked and exceptional tendencies of an elementary character along the lines of art, music, literature or mathematics; it is conceivable that such a child might be regarded as a bit defective, and be most unfortunately set to nailing up boxes and constructing peach-baskets by a medical examiner whose thinking, outside of his profession, scarcely ever went beyond golf and bridge whist. In so broad and uncertain a field as the care of the defective child, the physician is liable to find his limitations for making a correct diagnosis and advising a judicious line of treatment more glaringly revealed than in any other branch of his professional work. The class of children first referred to should be saved from incompetent and inadequately educated experimenters. The harm they will do in squelching a mind that is normal, but not developing along old conventional, humdrum lines, will outweigh the little good they may accomplish with their manual teaching when they do have a defective child to care for.

DR. GEORGE H. MOODY, San Antonio, Tex.: I have observed that it is very difficult to avoid the tendency to blend vaguely feeble-mindedness in children with dementia praecox. Are we going to allow ourselves to call some of the feeble-minded children dementia praecox patients; or is a dementia praecox a distinct disease separate from feeble-mindedness? Of course, we often see and understand that dementia praecox occurs in children who are constitutionally inferior, and that the latter superimposed condition may be overcome while the original inferiority never can.

2. Pighini: Riv. sper. di freniat., 1908, iii-iv, 497.
3. Sano: Jour. de Neurol., 1910, Nos. 15, 16, 17.

We are frequently asked for a prognosis in cases of dementia praecox. If we are to distinguish dementia praecox from feeble-mindedness then we are going to give a different prognosis. If we separate the two conditions when they occur in the same individual, which often happens, it seems to me that we can frequently tell the parents that perhaps the child will regain the condition which has been normal for that child; but if the parents expect a child with dementia praecox to overcome its natural mental inferiority as well, provided it be congenitally inferior, and come up to the normal intellectually, physically and every other way, of course we must tell them that it cannot recover. It is important to avoid the blending of weak-mindedness in children with the beginning of dementia praecox. With this strict avoidance there will be a greater percentage of recoveries in our dementia praecox cases.

DR. H. A. COTTON, Trenton, N. J.: The variation in the number of dementia praecox cases in the various institutions may be ascribed to two factors: first, errors in diagnosis, which are liable to occur in any institution in which they are not well acquainted with the disease; second, there is a distinct difference in different localities. At Danvers, Mass., we had a pretty large proportion of dementia praecox cases, and I rather favored the diagnosis of manic-depressive insanity. Still, there were many cases diagnosed as dementia praecox. At Trenton, N. J., where the persons of foreign descent are much fewer than in Massachusetts—a large proportion of our patients were of Irish descent of first and second generation—we have perhaps the smallest proportion of dementia praecox cases because the locality, the type of population, etc., have something to do with it.

I agree with what has been said about the necessity for recognizing these other cases, and doing something before the patients come to the institution. We have them as they come into the hospital, when they are from 7 to 10 years old, after the onset of the acute stages of the trouble; and I think we are in the same position now with regard to dementia praecox that we were with tuberculosis some years ago, when the physician, having said "consumption," sounded the death-knell of the patient, while to-day we know that if the symptoms are discovered early a large proportion of the patients recover. So with dementia praecox, when we are able to give symptoms and show conditions which need attention in the early stages, then we will be apt to have more results from the family physician.

DR. C. B. BURR, Flint, Mich.: I think we should hesitate to exalt into a differential-diagnostic sign something which may be present in a variety of nervous conditions or which may depend on transitory, momentary conditions of muscular activity and perhaps on emotional states. I have not observed the connection of which Dr. Cornell speaks; but, of course, we all recognize cyanosis as an accompaniment of depressed nervous conditions. If it is true that we can by a little more attention to cases discover that this is a sign enabling us to differentiate between manic-depressive conditions and those of dementia praecox, we shall be deeply indebted to Dr. Cornell for bringing the subject to the attention of the Section.

DR. E. E. SOUTHARD, Cambridge, Mass.: Some years ago I undertook an analysis of anatomic material in dementia praecox. To get a list of cases to work with I selected from the autopsy list all cases denominated dementia praecox, and before investigating them anatomically I looked them over clinically to make sure that I had a convincing list. I started with sixty-three. I did not think, however, that I could persuade my professional brethren of the existence of dementia praecox in many of them, and finally I got a selected list of twenty-nine, which I thought were really cases of dementia praecox. The others were possibly affected by alcohol, or by imbecility, or by the probability of an erroneous diagnosis in the direction of manic-depressive insanity; and even in the cases which I finally analyzed anatomically, there were a number of phenomena in the brains which would lead one to think that several of the cases were at least, as we say, on the imbecile basis. There were evidences of hypoplasia or congenital alterations in the brain in some of the cases. The percentages I have forgotten, but the diagnosis was difficult. I rather feel as if we could talk concretely about the catatonic form and the hebephrenic form. Paranoid forms make up statistics on these forms rather than the total group; and there is a large number of cases allied to dementia praecox.

DR. W. R. DUNTON, JR., Towson, Md.: I do not want Dr. Neustaedter or any one else to understand that I simply advocate manual-training treatment. I speak of that as typical of the sensory training which we want to give these patients; and the geographic and social environment and everything else must be considered very strongly. A bashful child, I think, needs study to discover the cause of the bashfulness. The unsociability of a bashful child is simply a sign, and to my mind those cases should be studied. The personality is a strong element. Certain physicians will not diagnose cases of dementia praecox unless the dementia is extreme, that is, until the terminal stage is practically reached. As for diagnosing the disease in the predementia stage, it never enters their minds. If there is a remission (and we all know that remissions occur frequently) they do not believe that the case is dementia praecox—it must be something else (because the patient has recovered!).

I do not agree with Dr. Moody about the confusion of feeble-minded and dementia praecox cases. I think the distinction can ordinarily be made. But we must remember that feeble-minded persons occasionally have attacks of dementia praecox. The cyanosis has always suggested to me a faulty metabolism.

"Allied dementia praecox" is an unfortunate term, and the sooner we drop it from our classification the sooner we will come to a more exact understanding of this condition; if every one will remember that the cardinal symptom of dementia praecox, the most important thing to bear in mind in case examination, is apathy, the patient's emotional indifference, I think we will come to a definite understanding sooner than if we use the term, "allied dementia praecox."

DR. W. B. CORNELL, Hathorne, Mass.: Dr. Southard spoke of the difficulty of diagnosis and the personal element connected therewith, but every step toward the establishment of definite clinical signs tends to eliminate the personal element and the resulting errors. I am inclined to lay considerable importance on the physical findings in this disease. Dr. Moody asked regarding the occurrence of cyanosis in weak-mindedness and if dementia praecox bears any relationship to the latter. I think that dementia praecox and imbecility or weak-mindedness are quite distinct, but they may be combined, and in such cases cyanosis may be seen frequently. I am indebted to Dr. Burr for his questioning the value of cyanosis as a symptom in psychiatry. Often I have doubted its value myself, but now I really think that it is of importance, particularly as a diagnostic sign in cases of acute catatonic excitement in which cyanosis is often quite marked and calls attention to the necessity of circulatory stimulation.

I have no data on the occurrence of cyanosis in epileptic cases.

MEDICAL EDUCATION IN SOUTH AMERICA

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Last winter, having contemplated a trip to South America, I was appointed by Dr. A. M. Corwin, chairman of the Chicago Medical Society Council Commission on Medical Education, of which I am a member, to obtain data regarding the medical schools in the countries which I should visit. I also received a similar request from Dr. N. P. Colwell, secretary of the Council on Medical Education of the American Medical Association. It is to record briefly my findings in this direction, as far as I could obtain knowledge of the facts on a hurried visit, that this article is written.

I left New York Jan. 20, 1912, and arrived at Buenos Aires during the height of the Argentine summer, when the colleges were all closed and many of the faculty members away on their vacations. The weather was sweltering, but I was able to find well-informed physi-

cians and through Spanish and Portuguese interpreters obtain information.

I was received with great courtesy by our Southern colleagues, who made every effort to show me their hospitals and schools and to give me all the information that I asked for. They demonstrated that the proverbial reputation of our neighbors of the Latin-American countries for hospitality and courteousness is well founded.

I visited the schools and hospitals of Brazil, Uruguay, Argentina and Chili, and was told about the medical schools of the other countries of South America that I did not visit.

The medical department of the state university at Buenos Aires is the best school in South America and will compare favorably with any school on this continent or in Europe. The city of Buenos Aires is thoroughly cosmopolitan, having 1,350,000 inhabitants and a history dating from the sixteenth century. It is well to remember that the oldest civilization of Europeon origin in the western hemisphere is Latin, and that many cities to our south antedate the oldest in the United States.

The medical university at Bahia is the oldest and one of the most noted institutions in Brazil, having been established by Regent Don João, who visited Bahia in 1808. It will be remembered that the first medical school in the United States was the one at Philadelphia founded by Dr. John Morgan in 1765. The personal physician of the royal family founded the institution at Bahia, which was called the Collegeo Medico-Chirurgico, the first lectures being delivered in the military hospital of Bahia. In 1832 it was installed in a suitable edifice of its own and the course of studies was enlarged. It was not until 1882, however, that it became known as one of the best medical institutions in South America. During that year it was completely reorganized by the emperor. Seven new chairs were created, making the whole number twenty-six. New laboratories were opened, and medical and surgical training was improved. In 1901 a chair of bacteriology was created and an experimental laboratory established in this department.

The curriculum is divided into twelve sections, embracing all branches of medicine, and the course of studies extends over six years, special attention being paid to clinical teaching which is given in the Misericordia and other hospitals as well as in the clinical institute of the faculty, which is comparable to our own dispensaries. The building for this work is lighted by electricity and equipped with many modern conveniences. This is the smaller of the two medical schools of Brazil. The charitable institutions of Bahia, in which the students receive their clinical training, are governed by the central board of health, which has charge of the hospitals, the disinfection department, the city service and the vaccine institute.

The other medical college of Brazil is located at Rio de Janeiro and, though younger, is much larger. It also has a six-year course and has about 1,000 medical students. The population of this city is 850,000. The students of both of these colleges have the privilege of attending either of them in any department. Both institutions are under government patronage, but are subject to proprietary control of the faculty which regulates the curriculum. The salaries of the older professors are still paid by the government, but the newly appointed professors are remunerated from the income of the school itself.

Up to one year ago the grade of both these institutions was decidedly low as compared with our own standards or those in other parts of South America, but within this period a thorough reorganization has been effected on the lines of the medical universities of Germany.

The government, in addition to salary appropriations, allows a considerable sum yearly toward the running expenses. As an entrance requirement all students must know Portuguese, their own language, and in addition any two foreign languages, the preference being given to French and German. The lectures are delivered in Portuguese, but most of the text-books are of French and German authorship. French is preferred by the students.

The medical course is of eight months' duration, from April 1 to December 1. Formerly examinations for degrees were written, but of late all tests are oral, each student being required to discourse for fifteen minutes before the examining board. These innovations seem to prevail in all the colleges of South America, and the reason given is that under the written system "cribbing" could not be controlled.

The resident surgeon of the state hospital (which is similar to our Cook County Hospital) is paid by the government; his assistants receive part pay from the same source and the remainder from the medical faculty. It should be said in justice to the Brazilian medical schools that though they have been of low grade compared to those in Argentina, Uruguay and Chili and the average in our own country, they are now endeavoring to place themselves on a par with the best in South America in equipment, buildings and requirements.

In passing from tropical Rio de Janeiro to temperate Argentina we find a radical change for the better in the status of medical education and practice. There are two schools in the latter country, one at Cordova and one at Buenos Aires, both under national control and management. The proprietary school, therefore, is unknown and not allowed. There are at least from 1,500 to 2,000 students in the medical department of Buenos Aires University. The admission requirement is a secondary school diploma; the medical course extends over seven years, the curriculum being thoroughly graded for each year. The examinations are all oral, and no thesis is necessary. There are thirty-two examinations of half an hour each before a commission of three professors appointed by the dean. The examinations are severe and must be passed in the Spanish language. They take place twice a year, the first for all students and the second for those who did not pass; third, there is a special examination for foreigners, who must present a diploma from their own country viséed by some home authority and by the local Argentine representative from the home country. After this they are admitted to examination, and must pass all the studies included in the curriculum of the seven years; all the examinations are held in Spanish. The fee for examination is $1,000, Argentine money, I think. It is perhaps worthy of note that foreigners are permitted to practice in rural districts provided there are no local Argentine physicians, but permission must be secured from the board of health to practice. This is evidently to encourage medical practitioners in these outlying districts, where I am told handsome rewards are to be had. Quacks are scarce in that country and the examiners are not open to bribery, so rigid is the government regulation.

The profession is not so overcrowded as it is in the United States, though I was unable to secure statistics on this point. French text-books are used and some German, but no English. The English language is not spoken or understood. The text-books in surgery are in French.

There are two rival medical societies in Buenos Aires. There is no characteristic student life; and no medical clubs or fraternities exist. Drinking and dueling among students are unknown. There seems to be a distinct antagonism between Argentine and foreign practitioners, notwithstanding the notable courtesy extended to me.

All interns are chosen from the best among the sixth and seventh year students. The professors are appointed by the minister of education, but as a rule are recommended by the faculty. All are paid for their services.

A good many students finish their education in Paris or Berlin. There are no postgraduate schools in Argentina. The government annually sends certain students to Europe at government expense and I think only one has been sent to the United States recently. American colleges might do well to cultivate this field, not only to bring to the attention of South Americans the superior work done in the United States, but to stimulate better international intercourse between the various Latin-American countries and our own. The late Nicholas Senn did much to encourage Japanese medical students seeking medical education to direct their travels from France and Germany to our own shores. Had he lived it is safe to say that the largest percentage of these would have been in American schools to-day.

I well remember that when I was on my trip around the world with him, about ten years ago, a banquet was given in his honor at Tokio by the government. On a side table was a collection of all the works which were the product of his active and virile pen. The honors accorded him and the attentions shown him were princely, and the eulogies pronounced to his fame as surgeon and teacher far surpassed anything that I have ever listened to.

In response, he dwelt forcibly and at length on the advantage to be gained by Japanese medical students in coming to our country. With him this was a sacred conviction born of his national pride. It would have done your hearts good to listen to the patriotic spirit which he voiced that evening. If to-day we had others of his kind, the United States would soon be the Mecca of our Southern, as well as of our Western neighbors across the seas.

To return to the school at Buenos Aires: the buildings are large, spacious, well lighted and richly equipped with all the modern appliances for comfort and superior work. They are well stocked with apparatus of every description, scrupulously clean and in order, and are patterned after the best in Europe. Laboratories, departments for the specialties, dissecting-rooms, etc., are prodigally planned and lavishly equipped. Good use is evidently made of it all, though I cannot vouch for this because it was in the vacation season when I visited them.

The reason that they can do these things on so great a scale is the government control and the large sums of money that are received for this purpose from race-courses and lotteries which are sanctioned by the government and universally patronized.

Buenos Aires contains hospitals aggregating about 5,000 beds freely accessible to all medical students of the fifth, sixth and seventh years; here the students receive their clinical training.

The other medical school of Argentina is located at Cordova. It is much smaller than the one at Buenos Aires, but the requirements, government control and management are similar. There are no proprietary medical colleges in Argentina. In Uruguay and Chili the system of medical education is substantially like that in Argentina, but in Paraguay, I was informed, medical training is bad.

Venezuela has two medical colleges, one located at Caracas and one in Ciudad Bolivar, the former having only forty or fifty medical students, the latter twenty-five or thirty. The course of medical instruction in these institutions extends over a period of three years. Both faculties are small and inefficient and their curriculums and requirements are far below par. The oldest hospital in South America is the Misericordia at Caracas governed by the Sisters of Charity.

Boys of 16 and 18 years of age are allowed to study medicine in Venezuela. In spite of this evident lack of preliminary education many of them I am told are wonderfully keen, have analytical minds and grasp ideas readily; they can converse on medical affairs fluently and intelligently but do not tend to carry out in practice what they learn.

Cadavers in Venezuela are not preserved as with us. Fresh subjects are taken and worked with as quickly as possible in order that they may be disposed of the same day. This is done because of the heat and moisture of the atmosphere which rapidly disintegrates the bodies. Subjects are numerous and easily procured, as all deceased indigents are turned over to the dissecting-rooms if wanted.

Caracas is a city of 100,000 inhabitants and contains only about 100 physicians. There is a need of good physicians in Venezuela. The native physicians are not prosperous because of the custom among them of allowing patients to pay whatever they wish. Foreign practitioners make specific charges and the people have more faith in them and look up to them as being more highly educated. There is no state medical association, but local societies exist as with us. Suits for malpractice are unheard of among these natives. It is ethical for physicians to advertise in the daily press and give testimonials for patent medicines.

There is a leper hospital of 400 beds in Caracas. The patients go and come as they please. Twice weekly those who are able go about and can be seen begging in the streets. On market days it is a common sight to see them vending vegetables.

A law exists in Venezuela against unlicensed practitioners. Non-graduates can procure licenses on examination but must practice in the rural districts, where they are numerous. Birth-certificates are not compulsory, but death-certificates are. Indian doctors are allowed to practice as they choose and the law does not interfere with them. Love potions to bring lovers together are common prescriptions, and strange to say, as in America, these fakers are patronized by some of the best families.

Generally speaking, in South America schools for nurses are wanting, and, while the Sisters are very charitable, they lack efficient training in the up-to-date, modern, scientific care of the sick. Male patients are universally attended by male orderlies. I was impressed with the fact that everywhere hospital accommodations are below requirements. I saw in almost all the state hospitals many patients lying on the floors, so manifest

was the overcrowding. The good sanitary condition, however, which has been established in the sea-coast cities within the past five or six years, is in notable contrast to the former state when the cities were recognized pest-holes. These reforms are in large measure due to the fact that medical men are at the head of many South American municipalities. For example, the mayor of Rio Janeiro is a physician, and is proud of the sanitary measures which he has inaugurated in that city. Well may he be, for it is one of the cleanest cities that I have ever visited.

In conclusion I may suggest that the holding by American physicians of the offices of mayor, alderman, governor and other executive positions is needed to place us on a par with members of our profession in other parts of the world where they are in the van of progress as leaders in politics, and in economic and social affairs. It is for this leadership that our higher medical standards and training fit us.

32 North State Street.

A SERIES OF INFANTS FED ON A HIGH-PERCENTAGE ALBUMIN MILK *

FRANK C. NEFF, M.D.
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The work of Finkelstein and his school in the use of *Eiweiss-Milch* in the nutritional disorders of infancy is now too well known to need narration. Many of you have seen this food used at the Berlin Kinderasyl or elsewhere, many personally have tried it, and all have read the growing literature on the subject. That it has a temporary value in selected cases is accepted by most observers. That the dyspeptic stools improve and that with the addition of malt sugar the infants begin to gain in weight is the experience in most cases.

It is my purpose in this paper to record observations on the administration of a milk which is prepared according to the method of Finkelstein but in which the whey-elements have been increased beyond those of the regular albumin milk. The food which I have used is therefore richer in proteids, sugar and salts. This has been attained by using all buttermilk as the diluent for the curds instead of half buttermilk and half water.

The analysis of Finkelstein's albumin milk as published throughout the literature gives the following percentages:

Fat	2.50 per cent.
Albumin	3.00 per cent.
Sugar	1.50 per cent.
Salts	0.50 per cent.

It represents the fat and casein from 1 liter of full milk; casein, sugar and salts from ½ liter of buttermilk and water, ½ liter.

Some have failed to add a half liter of diluent, and as a result there are only 32 ounces of a milk mixture as the finished product, which increases the percentage and caloric content quite materially. The curds from 1 liter of sweet milk add about 250 c.c. or 8 ounces by volume to the liter of buttermilk and water, making 1,250 c.c. or roughly 40 ounces.

Percentages vary in such a complex milk, the ingredients of which are obtained from so many different sources. The fat, proteid and sugar-content of both sweetmilk and buttermilk is not constant, while not always is the same amount of curd precipitated, due to variations in the pepsin, the temperature and the time. Several analyses have been made for me by reliable chemists.[1] The composition varies widely, which coincides with the findings of Birk.[2]

The milk which I have used in the cases reported I have designated "high-percentage albumin milk." The analysis from one specimen gave:

Fat	2.00 per cent.
Protein	3.31 per cent.
Carbohydrate	6.51 per cent.
Ash	0.96 per cent.

Other analyses did not give so high carbohydrate, but the fat has tested as high as 2.9 per cent. and the protein 5 per cent. Therefore, I have found it impossible to state a uniform percentage. Likewise, the caloric estimation must vary somewhat, but the above analysis gives 18.3 calories per ounce, and 585 for 32 ounces. This is an average caloric content for the different analyses that have been made. The composition of high-percentage albumin milk is as follows: Fat and casein from 1 quart full milk. Casein, sugar and salts from 1 quart buttermilk. No water added.[3]

This formula, then, makes a total of 40 ounces, and is made up of a quart of churned artificial buttermilk made with a lactic acid ferment, reenforced by the addition of the precipitated fat and casein from a quart of sweet milk.

The primary object was to obtain a milk that could be used in the transition from Finkelstein's formula or from buttermilk. It has a higher salt-, sugar-, casein- and caloric-content than *Eiweiss-Milch*.

Malt-sugar, cane-sugar or flour have in certain cases been added in from 1 to 4 per cent. This corresponds with the recent work[4] done by Finkelstein's pupils in Berlin.

The infants to whom this mixture was fed and all of whom up to this time are reported herein were under 6 months of age at the time the feeding was begun, ranging from 22 days to 5½ months. All were inmates since birth in the institution and had been continuously observed. Many of them had not gained on breast-milk, and none of them had gained on sweet milk. All of them had shown stationary weight; most of them had had undigested stools, and many had various degrees of atrophy.

REPORT OF CASES

CASE 1.—Baby Ar., weighing 3,920 gm. at birth on Sept. 14, 1911, had not regained birth-weight at the end of two weeks when he had to be taken off the breast. The next ten days showed a rapid fall in weight and dyspeptic stools while being fed a simple sweet milk dilution with sugar addition. When the child was 24 days old he was put on Finkelstein's *Eiweiss-Milch* for ten days; the stools were still somewhat green and undigested, the weight remaining stationary at 3,110 gm., which was 800 gm. less than the birth-weight. At the age of 34 days the food was changed to the high-percentage albumin milk. The infant gained 839 gm. in the next twenty-six days. Then followed a period of a month during half of which time sugars were added without any gain at all, the stools for the most of the time being macroscopically good.

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Analyses of buttermilk, *Eiweiss-Milch* and high-percentage albumin milk have been made for me on different occasions by the Kansas City municipal laboratory and the Kansas City testing laboratory.
2. Birk: Monatschr. f. Kinderh., 1910, ix, 140.
3. The technic of preparation is that employed by Finkelstein.
4. Renfrey: Jahrb. f. Kinderh., March, 1912. The author states that the sugar added should never be less than 3 per cent. and may go up to 6, 7 or 8 per cent. if the bowels remain good.

RESULTS OF FEEDING HIGH-PERCENTAGE ALBUMIN MILK IN SIXTEEN INFANTS WITH STATIONARY WEIGHT AND VARIOUS DEGREES OF ATROPHY

Number	Name	Birth Weight Gm.	Age (Days) at Time This Food Was Begun	Time (Days) on This Food	Weight (Gm.) at Beginning	Weight at End	Total Gain	Carbohydrate: Day When Added	Carbohydrate: Kind (Percentage)	Stools Before Using	Stools During Using	Temperature	General Results	Outcome of Case
1	Ar.	3,920	34	75	3,120	6,210	3,090	34	Cane, 1.5	Dyspep.	Digest.	Normal.	Good.	Left institution normal.
2	Wi.	2,845	67	68	3,045	4,795	1,750	19	Cane, 1.5; later malt.	Green mucus.	Yellow digest.	Normal.	Good.	Left institution normal.
3	Ol.	3,917	160	102	3,660	5,725	2,065	22	Malt, 2	Good.	Good.	Normal.	Good.	Developed infantile glaucoma.
4	Te.	3,310	88	38	3,387	4,065	678	8	Malt, 1	Loose green.	Usually good.	Normal.	Good.	Left institution normal.
5	Al.	2,720	37	15	2,615	2,970	355	..	.....	Constip.	Constip.	Normal.	Fair.	Gained slowly on malt soup.
6	Ha.	4,000	50	22	4,052	4,400	348	6	Cane, 1	Good.	Digest.	Normal.	Fair.	Gained slowly on malt soup.
7	Sh.	4,045	34	34	3,825	3,800	—25	..	.....	Green.	2 to 4 dyspep.	Normal.	Poor.	Stools became normal when food was changed to malt soup.
8	Ha.	2,800	26	30	3,074	3,240	166	14	Dex-malt, 2.5	Constip.	Constip.	Normal.	Poor.	Stools became normal later on malt soup.
9	Wa.	3,691	22	22	3,795	3,880	85	5	Cane, 1	Green.	Good.	Normal.	Poor.	Left institution.
10	Ma.	3,350	98	23	3,700	4,062	362	4	Malt, 2.5	Loose yellow.	Good.	Normal.	Good.	Developed spinal postural deformity.
11	Ca.	2,572	50	48	2,530	3,450	920	10	Cane, 2.5; later malt.	Dyspep.	Constip.	Subnormal.	Good.	Left institution in good condition.
12	Wi.	3,032	54	28	3,072	3,845	773	4	Malt, 2.5	Irregular.	Loose yellow.	Normal.	Good.	Left institution normal.
13	As.	4,245	30	14	3,640	3,574	—66	3	Malt, 4	Dyspep.	Good.	Subnormal.	Malnutrition.	Later gained on cereal.
14	Da.	3,405	30	9	3,310	3,415	105	7	Dex-malt, 4	Digest.	Loose.	Normal.	Good.	Put on sweet milk.
15	Le.	3,500	27	42	3,238	4,315	917	7	Malt, 4	Constip.	Good.	Normal.	Good.	Put on sweet milk.
16	Gr.	3,405	30	35	3,020	3,348	929	5	Malt, 4	Dyspep.	Good.	Normal.	Good.	Continued good.

At the beginning of the infant's fourth month at first 1 per cent. and later 2 per cent. cane-sugar was added, with a subsequent gain of 800 gm. in the next twenty-four days. It was then thought that the child could safely be put on a sweet milk mixture, but he began to lose and to develop green stools. Buttermilk with cane-sugar caused a temporary slight gain, the temperature being normal but constipation marked. February 24, when the child was 5 months old, the high-percentage albumin milk without sugar addition was again begun and during the ensuing month the gain in weight was 1,000 gm., the stools and temperature being normal. The child at this time left the institution in good health.

CASE 2.—Baby Wi., weighing 2,845 gm. at birth on Sept. 26, 1911, nursed for two weeks at the end of which he weighed 3,005 gm., after which he was fed on various cow's milk formulas until November 21, maintaining a stationary weight. From November 21 to December 3, he was fed Finkelstein's *Eiweiss-Milch* with no gain. The stools were somewhat constipated. December 3, the infant was put on high-percentage albumin milk, gaining about 500 gm. in seven days. The weight was then stationary for twelve days when 1 per cent. cane-sugar was added; the child gained slowly but constantly. January 11, 2 per cent. malt extract was substituted for the cane-sugar, the weight increasing in the next twenty-seven days from 3,865 to 4,795, nearly a kilogram, when the child left the institution. The stools during this period were from one to four daily and of normal consistence usually; the temperature and general condition were good. Thus this infant was fed for two months on a high-percentage albumin milk, gaining both before and after the addition of sugar for a total of 1,750 gm.

CASE 3.—Baby Ol., weighing 3,917 gm. at birth on June 28, 1911, nursed for twelve days with an initial loss of 400 gm. at the twelfth day; he was then fed on various cow's milk mixtures until he was 5½ months old at which time he weighed only 3,740 gm. The first four months of life the infant had frequently dyspeptic stools and showed marked atrophy. A moderate gain on buttermilk with cereal addition occurred from the 4th to 5½ months, at which time was begun the high-percentage albumin milk without sugar addition. For the following three weeks there was a gain of 620 gm. Then 1.5 per cent. malt extract was added, the infant going from 4,280 gm. to 5,700 gm. in the following two months, the weight remaining here for two weeks when a change to malt soup was made. During this time a double infantile glaucoma appeared, but the child continued to gain slowly.

CASE 4.—Baby Te., weighing 3,310 gm. at birth on Oct. 10, 1911, nursed for two weeks at the end of which time the weight was 400 gm. below the birth-weight. For the next two weeks the patient was fed on a simple sweet milk dilution and lost weight; had dyspeptic stools but a normal temperature. During the second and third months of the child's life there was a slight gain on buttermilk with cane-sugar, the stools remaining bad and the temperature normal. At the age of 2½ months the food was changed to Finkelstein's *Eiweiss-Milch* for two weeks with improvement in stools, but none in weight. Jan. 11, 1912, when the infant was 3 months old, the high-percentage albumin milk was begun. The weight was only 3,387 gm. Malt extract, 1 per cent., was added and the infant gained 700 gm. in the next thirty days, the stools for the most of the time being in good condition.

CASE 5.—Baby Al., weighing at birth 2,720 gm. on Oct. 30, 1911, was fed from the start on a sweet milk mixture with no initial loss of weight, but at the end of the first month weighed 200 gm. less than at birth. The stools had been irregular, some days showing curds and constipation, but in good condition at the time of beginning high-percentage albumin milk on the thirty-sixth day of life. There was an immediate gain of 300 gm. in five days, after which the weight remained stationary and the stools and temperature normal. No further attempt was made with this food.

CASE 6.—Baby Har., weighing 4,000 gm. at birth on Oct. 31, 1911, nursed sixteen days; was still 199 gm. below initial weight; continued to lose weight for the next three weeks on a sweet milk formula. Temperature was normal and stools

good. December 6, weight was 3,639 gm., but a change to buttermilk caused a gain of 500 gm. in 8 days, when weight remained stationary for a week. High-percentage albumin milk with 1 per cent. cane-sugar was then fed for ten days with a gain of nearly 500 gm.; again a stationary weight for five days when a sweet milk formula was begun.

CASE 7.—Baby Sh., large infant with stationary weight at 1 month of age was given high-percentage albumin milk for one week without any gain. During this period the infant had a nasal discharge, stools were somewhat dyspeptic, temperature between 99 and 100 F., which became normal by the time this food was stopped.

CASE 8.—Baby Ha., aged 2½ months Feb. 2, 1911, who has gained only 300 gm. since birth, gained about 200 gm. in the next twelve days on high-percentage albumin milk, but remained stationary for the following eight days when dextrimaltose was added. Bowels became constipated but temperature was normal.

CASE 9.—Baby Wa., aged 3 weeks, weight 3,795 gm., stools loose, green, but only two daily, was fed for eleven days on high-percentage albumin milk with complete improvement in the stools, but a gain of only 200 gm. in weight when 1 per cent. cane-sugar was added.

CASE 10.—Baby Ma., aged 3½ months on March 31, 1911, weighed about 400 gm. above birth-weight; stools were usually loose and yellow. There were evidences of moderate amount of malnutrition. The child gained 400 gm. in twelve days at which time he left the institution. To this infant's food was added 3 per cent. malt extract. The stools remained loose but good in color and frequency.

CASE 11.—Baby Ca. weighed at first month 2,530 gm., (5¾ pounds) no increase over the initial weight; although the infant was part of this time on the breast, the stools were dyspeptic and the temperature was usually subnormal. He had showed a slight gain for two weeks previously on Finkelstein's formula with an occasional breast-feeding. A change to the high-percentage formula without sugar caused no gain for the next week, but when malt extract was added a gain of 1,000 gm. in the next month and one-half was noted.

CASE 12.—Baby Wil., aged 53 days, weight 3,072 gm., had not gained since birth; there was marked constipation in spite of daily administration of olive oil, and the addition of dextrimaltose to the milk. Food was changed to high-percentage albumin milk with from 2.5 to 5 per cent. malt extract added, the patient gaining 800 gm. in the following twenty-seven days; general condition was good.

CASE 13.—Baby As., 1 month old, had been feed on various cow's milk mixtures with decreasing weight, with loose and undigested stools. Weight at this time was 600 gm. below birth-weight. From 1 month to 6 weeks of age, the high-percentage albumin milk, with malt extract addition up to a total of 8 per cent., caused a marked improvement in stools, but a slight loss in weight. Child continued to be atrophic.

CASE 14.—Baby Da., 1 month old, stationary weight since birth, temperature normal, stools good, was fed for ten days on high-percentage albumin milk with only slight gain, but maintained good stools.

CASE 15.—Baby Le., weight at birth 3,560 gm. on Feb. 16, 1911, was fed from the start on a low fat and high sugar formula until twenty-seven days old, with a slight loss in weight, when the high-percentage albumin milk with 4 per cent. of malt extract was begun. The patient gained 800 gm. in the next twenty-eight days; the stools and temperature were normal.

CASE 16.—Baby Gr., 1 month old, had lost 400 gm. since birth and had dyspeptic stools. When put on the high-percentage albumin milk with malt extract, 4 per cent., the patient gained 328 gm. in the next month, and continued to gain while in the institution.

RESULTS

Just why the high percentage in this buttermilk mixture which I am using has been easily tolerated as evidenced by the uniformly good stools, frequent gain in weight and absence of fever is hard to say, but the reason probably lies in the increased digestibility from the presence of buttermilk and from the freedom of over-feeding by caloric control, while at the same time the infant is getting sufficient. Heim and John, however, at Budapest, have recently reported good results from the use of a casein-enriched sweet milk.[5]

Nine of the sixteen patients showed good gain in weight, a few of these being quite marked.

Two showed loss and two only slight gain. One of the former was the most atrophic in the series. In all of the cases the good effect on dyspeptic stools occurred. Three infants remained constipated.

As long as the infant continued to gain it was kept on this food. Some gained with or without addition of sugar.

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ABSTRACT OF DISCUSSION

DR. J. H. HESS, Chicago: Unquestionably, catharsis gives us a great deal of aid in eliminating from the bowels, and, if proper cathartics are used, also from the kidneys, in all intoxications, especially those due to intestinal absorption. I believe, however, that there is danger of going too far. I have never had the courage to give 5 grains of calomel to a young infant. Not many months ago a series of experiments was carried on by Dr. Abt in our clinic at Michael Reese Hospital to note the effect of the various cathartics in infants and young children. We found in all infants that 1 grain of calomel given daily in divided doses over a period of three days produced at least microscopic blood in the stools. The same thing was found when 1 dram of magnesium sulphate was given daily over a period of three days, and also but to a lesser degree when 1 dram of castor oil was given daily for three days. Inasmuch as some of the patients were normal babies, sent to us for feeding because the mothers were sick, these findings were particularly striking. I recall one well baby that was given 1 grain of calomel daily for two days. It had no ailment of any kind, but we almost lost it. It was several weeks before the baby was considered out of danger. Undoubtedly, areas are opened in the intestinal tract, and infection takes place through them.

I believe that one great trouble in this country is that most of us do not know how to make *Eiweiss-Milch*. Finkelstein did not give details for its preparation sufficient for use in the home or in the small clinic. His was made by a large manufacturer with large equipment especially designed for a homogeneous mixture, and without these when making it in our clinic we do not get a fine curd. As a consequence it does not go through the bottle, or we make an error in another direction and do not feed enough carbohydrate with it. Since we have been making it according to later instructions our results have been entirely different. When Dr. Neff says that with the *Eiweiss-Milch* he got no gain but with the higher percentage food he did, I think it was simply due to the fact that he did not follow Finklestein's dictum: if you do not get a gain in weight add more malt-sugar. Dr. Neff says that Finkelstein directs the addition of "one-half liter of water and one-half liter of buttermilk." What Finkelstein really says is "add one-half liter of buttermilk and water to a full liter." So in my experience you only add about 6 ounces of water and not 16.

DR. J. L. MORSE, Boston: We are now in a transition stage as to the question of etiology of diseases of the intestinal tract and therefore as to their classification. The Germans are making at present a little too much of the chemical side. We in Boston are perhaps thinking a little too much of the bacteriologic side; the truth may lie somewhere between. I think almost everybody now feels that a baby from birth up, even a premature baby, is able to digest a reasonable amount of starch; in many instances it is a great advantage to add it. There is no reason to expect any harm to come from the addition of a reasonable amount of starch, whether dextrinized or not. I read a paper last week on maltose in infant-feeding in

5. Heim, P., and John, K. M.: Ztschr. f. Kinderh., Orig., March, 1912, I, Series 4.

which I maintained that lactose was the best sugar for the normal baby. It seems to me that one of the greatest things we owe to Finkelstein and his school is his calling attention to the injury sugar may do in the intestinal tracts of babies, especially milk-sugar, and to the substitution of malt-sugar for milk-sugar in the later treatment. When I speak of malt-sugar, of course I mean the various preparations of dextrin and maltose, because nobody uses pure malt-sugar. A large number of intestinal disturbances in infants are due to the fermentation of sugar and its chemical action on the intestine. These patients are relieved by cutting down the sugar to a minimum and feeding a high protein diet, but they improve more rapidly if malto-dextrin mixtures are added instead of lactose. I do not feel quite sure, from my experience whether precipitated casein as used in the *Eiweiss-Milch* has any advantage over the straight casein. I am sure that a high percentage of protein is of advantage. We have to remember not only the chemistry but also the bacteriology of the intestinal tract. Lactose is of advantage in some instances because it is slowly absorbed and maltose is of advantage in other cases because it is rapidly absorbed. Then also lactose favors the growth of the *Bacillus bifidus*, a normal inhabitant of the lower intestine, while maltose favors the development of the *Bacillus acidophilus*, which may do harm. In making Finkelstein's *Eiweiss-Milch* it seems rather inconsistent carefully to take out lactose, which, if it does harm, presumably does so by the formation of lactic acid in the intestinal tract among other things, and then add buttermilk, which is full of lactic acid.

We have found, in Boston, a certain number of cases which were undoubtedly meningismus, in which there was increase in the number of mononuclear cells in the spinal fluid, enough to lead to suspicion of tuberculous meningitis. Subsequently, this was disproved. It seems to me that a further knowledge is going to modify materially our judgment regarding the cellular findings in cerebrospinal fluid.

DR. L. T. ROYSTER, Norfolk: We should differentiate between the institutional case and that in private practice. There are two main reasons why we have had a large number of deaths in institution practice: first, lack of attention; I mean by that, insufficient help. With ten bottle-fed babies to one nurse, it is simply impossible to give them adequate attention. The other is lack of ventilation and fresh air. I have charge of a small institution for foundlings in my city, children who are abandoned from the slums of the city. The children that have come into the institution have usually been doped to such an extent that a bowel movement is impossible for four or five days and they are practically starved. We found that we were not doing quite enough in the matter of attention to these babies, and we have our ward open all around to get as much fresh air as possible. There is one graduate nurse in charge, and a student nurse from each of the two general hospitals and two ward helpers. As nearly as possible I feel that that is giving the children just as good care as is possible in an institution. Babies that are at all sick or young bottle-fed babies are invariably held in the arms while they are nursed. Personal care of each individual baby and plenty of fresh air are a great help.

For the past winter, in some select cases I have been using a preparation of malt-sugar after a formula devised by Dr. Leopold of New York. I have obtained some interesting results from that. I had two babies that were almost completely starved, had almost complete obstipation, having been doped, and weighed almost nothing at 2 or 3 months. They gained somewhat in weight, but did not reach normal, and stopped. The stools, so far as I could see, were normal; the baby was taking the requisite amount of food. The only change I made was to substitute dextrimaltose for whatever form of milk I was using. One baby gained 11 ounces and the other 7 or 8 in the first week, and kept up an average of 6 to 8 ounces a week for six weeks. Then I took a small series of babies in a somewhat similar condition, as nearly as you can compare two or three babies, and used them as an experiment; one was fed with one of the proprietary foods said to be especially rich in malt-sugar, the second on milk-sugar and the other on dextrimaltose. In that particular series, the child on the proprietary food gained about 3 ounces a week, the child on the milk-sugar gained about 5 to 6 ounces a week, and the child on malt-sugar gained about 6 ounces a week. I do not think it wise to keep the child on malt-sugar indefinitely. There comes a time when the child will stop gaining. In many cases the slightest change in the child's food, even putting in a tiny little bit of starch, or as one investigator found, just a little condiment, would start a digestive improvement.

DR. HERMAN SCHWARZ, New York: It has been proved that the addition of malt-sugar in a great many cases does help the children. Finkelstein, if he has done anything, has shown the difference between the normal and the abnormal child as regards sugars, and that is one of the most important points we fail to recognize, that when we are talking of sugar preparations in infant-feeding, we should distinguish between the normal and the abnormal child. For abnormal children milk-sugar is not the best. For the normal child it may possibly be all right. I began about three years ago to use *Eiweiss-Milch*, and it is used extensively in New York. I wanted to find out whether it was the high protein, the absorption of sugar or simply the breaking up of the coagulum which caused fermentation. I gave children *Eiweiss-Milch* and then washed out the stomach, and the returned coagulum was about the same. It seems to me that the results secured with *Eiweiss-Milch* are due to the high percentage of protein. It is not how much you give of any one component part of a food, but the combination. I can give a child a high fat, providing I give a low sugar. I can give a high sugar providing I give a low fat.

DR. T. S. SOUTHWORTH, New York: The old idea that the child could not digest preparations of starch in its first year has been thoroughly cleared away by experimentation. Many of us are in the habit of using the preparations of starch. I do not think it is necessary as a routine measure, often using lime-water and plain water, but where there has been intestinal disturbance, children often do better on an admixture of a cereal diluent. The original view taken of this matter was that the addition of the cereal diluent made a looser curd of the casein, and therefore made it more permeable by the gastric and intestinal juices, but it seems to me that there is another use for the polysaccharid carbohydrates. We know that when Keller put out his "malt-soup," he found that if he gave large quantities of the malt-soup extract alone there was too much sugar and the child got diarrhea. He was obliged to add starch to prevent this.

It is my opinion that the starch when given acts to a certain extent in protecting against fatty acids as well as against the irritant effects of sugars, which is a further reason why I think the addition of cereal diluents helps us. Of the three sugars, lactose, saccharose and malt-sugar, the lactose and saccharose are simply disaccharids, but the other which we use under the term "malt-sugar" is really a combination of more or less of the two ingredients, maltose and dextrins. We managed to get along for a good many years, disregarding the presence of these dextrins. We made no particular study of their action. Dextrin and starch have certain things in common. Dextrin is apparently able to protect the intestine in very much the same way starch does. The dextrin is capable of being further split up in the intestine into maltose. If we give part of our sugar in the form of maltose and part in the form of dextrin, which is not fermentable or dialyzable and consequently not so readily absorbed and not so irritating, the latter can be slowly split in the intestine, and furnish further maltose during the time of its gradual absorption.

DR. H. LOWENBURG, Philadelphia: The papers bring up the subject of the relation of the laboratory worker to the physician. I must confess that I am at times completely mystified by advice from the laboratory; it is so frequently contrary to clinical experience and contradicts itself. About eight or nine years ago I heard a paper by a laboratory worker before this Section on the etiology of marasmus, in which the author said that the cure of marasmus consisted in finding the proper food. I also remember another paper before this Section dealing with the etiology of summer diarrhea in which some very eminent authority described the etiologic factor as largely bacteriologic. The Germans deny this. For many years we were

taught to look on the protein as the source of our trouble, and then the laboratory worker came along and told us it was not the protein but the fat and the sugar. While I look to the laboratory for advice, I must confess that I have to be shown before I am willing to accept every new idea. In the last few years I have been feeding top-milk mixture with cane-sugar. I see no reason to discontinue, my experience having been successful. During June, July, August and September I pasteurize and try to get a mixture suitable to the child's digestion. I believe that if we combine chemical and bacteriologic study in our search for a proper etiology of digestive troubles, we shall probably reach the correct solution of the whole problem. I have never been able to understand why milk-sugar should be the cause of so many digestive disturbances for which at the present time it is given credit, for the simple reason that it is a natural ingredient of human milk, in which it is present in a large amount. The only reason I can advance is that the commercial product might be impure, contaminated with bacteriologic products, which are not properly destroyed by sterilization.

DR. ROGER H. DENNETT, New York: Dr. Schwarz spoke of having much better success with the malt-soup than with the dextrimaltose. I believe that that is because the malt-soup requires superheating of the milk in its preparation. It has been my experience, time after time, that some children cannot take milk that has not been superheated. If you take them off the superheated milk they immediately develop intestinal indigestion.

DR. LOUIS FISCHER, New York: I do not wish to be misunderstood that I ordered this dose of calomel for a child of a year. I was talking about children in the Willard Hospital aged from 7 to 9. I am willing to admit that calomel might do harm. I did say that the choice of active catharsis was left between magnesium sulphate, Rochelle salt and compound licorice powder. In giving a dose of magnesium sulphate the house staff has a routine method of giving 2, 3 and sometimes 4 drams at one dose on admission, especially when there is a tendency to constipation. In comparing a series of cases in the last ten years in which we allowed intestinal auto-intoxication to occur we had more complications later in the disease. I therefore wish to make one point: we should have free elimination of the gastro-intestinal tract, not necessarily with enormous doses of calomel or anything else, but with free stimulation of the emunctories of the body. This would result in less complication, and perhaps shorten the duration of the disease.

DR. F. C. NEFF, Kansas City, Mo.: In answer to Dr. Hess's question about the probability of some of the patients gaining if malt-sugar had been added a complete analysis of the cases will be printed, in which I show how much sugar was added, and when. Some did not gain at all until malt was added. I had a few patients who did well without any sugar. I wish to repeat that my object in presenting this series of cases was to show the results in feeding a milk which is undoubtedly indicated in certain patients, who are in certain degrees of atrophy. The milder ones might be said to have a persistent stationary weight. We had to find some food which was suitable. I believe some of these foods are better in these cases than the ordinary sweet milk mixtures. I simply offer a suggestion for trial in certain cases in which other foods do not show a gain.

Roast Beef and Hot Water in Exophthalmic Goiter.—In my own experience, patients with pulmonary tuberculosis or intestinal tuberculosis do best on a diet consisting largely of raw or underdone broiled or roast beef and hot water; and I have found the same régime useful in many cases of Graves' disorder. The hot water is sufficiently important to be emphasized by repetition. Given regularly and in sufficient amount, i. e., from 250 to 500 c.c. (one or two tumblerfuls) and preferably the larger quantity, about an hour before food four times daily, and between meals also, *ad libitum*, it keeps the gastro-enteric tract clean and active; and it promotes elimination by the skin, the bowel and the kidneys. Thus it permits a sufficient quantity of beef to be eaten, digested and assimilated, and causes the waste products to be excreted thoroughly.—Cohen in *Am. Jour. Med. Sc.*

RELATION OF THE INFANT WELFARE MOVEMENT TO PEDIATRICS*

THOMAS B. COOLEY, M.D.
DETROIT

We hear constantly nowadays that this is the era of preventive medicine, and the saying daily becomes more true. The physician is ever more concerned with warding off the ills which once he aimed merely to palliate or cure. As our science has grown, means have been made clear to us whereby the great scourges of humanity might be attacked at the root, and one by one they are being met and conquered. Certain of these evils have been so wide-spread and so obvious that as soon as ways of mitigating them became apparent, the attack was readily converted into a popular movement or crusade of which there are several now in progress, the most conspicuous to-day, perhaps, being the campaign against tuberculosis. In all of these movements the medical profession has been naturally, of right and of necessity, at the head, as it must furnish the knowledge which guides all the work.

THE INFANT WELFARE MOVEMENT

Curiously enough, one of the most fertile of all fields for the practice of preventive medicine has been left almost untouched until recently. No single period of life is so fatal as infancy; no disease ever had so many victims. Nothing probably causes more physical unfitness and wretchedness than the effects of infantile disease in those who survive. Nothing is more appealing than the helpless baby — nothing more important to the world than this future man in the making. No great discoveries were needed to show why infants die. Yet the infant welfare movement is only now well under way. The explanation of this may lie in the rather slow differentiation of pediatrics as a specialty. So long as nobody devoted any special study to the baby, it was perhaps natural enough that the enormous mortality and morbidity of infancy should be considered an incident of that period of life; but it needed only the proof which our rapidly developing specialty soon furnished that this great sacrifice of life and health was not necessary, in order to start a campaign which, young as it is, bids fair in a few years far to outstrip in importance and popular interest any similar movement heretofore inaugurated. Already, indeed, it is progressing so rapidly and being taken up everywhere so enthusiastically that it seems wise for us as pediatrists to consider just how it affects us and our specialty, and what our relations and attitude toward it should be.

This infant welfare movement is of necessity a many-sided one, for the infant is threatened with perils from many directions. In its fulness it involves other specialties than that of pediatrics and other vocations than that of medicine. To give the infant his proper chance for life and health implies the study and practical application of eugenics, the improvement of midwifery, the amelioration of poverty as it affects expectant and nursing mothers, the bettering of housing conditions, and many other things which involve the activity of the sociologist, the lawmaker, the sanitarian and the practical philanthropist. All of these things are of interest to the pediatrist also, as anything which affects the baby must be, and it is essential that he be conversant with the needs and accomplishments in these various lines;

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but the greatest opportunity, the most promising of immediate results, lies directly in his own peculiar field. It has been clearly demonstrated by the efforts put forth within the last few years to cut down infant mortality that an overwhelming proportion of all the sickness and death among infants is due to nothing more than widespread ignorance concerning the feeding, care and hygiene of the baby; and that education of mothers and prospective mothers in these particulars can be successfully carried on in such a way as to bring about almost immediately a reduction of more than one-half in the infant death-rate among those reached. No more glittering opportunity was ever offered to preventive medicine than this, and no specialty ever had a better chance to show what it was capable of doing for the world. This particular phase of the movement, being so much the most immediately practical, is the one which is receiving at present altogether the most attention and being the most rapidly developed. It is almost always the first thing attempted when new work is undertaken in any community, and its success, when properly handled, is likely to be the stimulus to further endeavor along less obvious, but perhaps equally important lines.

TEACHING INFANT-FEEDING

The methods of carrying out this educational work are, or should be, familiar to all of us. The modern development of the *gouttes de lait*, the milk stations, the "mothers' clinics," or most descriptive term of all, the "prophylactic dispensaries," with their visiting nurses to demonstrate to the women in their homes how to carry out the instructions they have received, have been many times described. The "little mothers' classes" in schools and social settlements are a newer, but well-established development. The instructive literature distributed in many cities is no novelty. The only reason for dwelling on the relation of the pediatrist to these things lies in the fact that the movement is so popular, and the work seems so well developed and so simple that there is some danger of its getting out of hand and being attempted without the skilled direction which is essential to the best results. A certain amount of indifference on our part, combined with overzealousness and too great haste on the side of the lay philanthropist and the health authorities, might easily lead to an entire miscarriage of the work undertaken in any community; and we should have another such waste of money and effort as accompanied the work of many of the charities which confined their efforts to the distribution of clean milk, of which so much was once expected, but which accomplished really little more than to help to prove that impure milk plays by no means the most important part in the causation of infant mortality.

It is the right and duty of the pediatrist to guide, direct and develop this educational work, and he cannot afford to delegate it to any one else. He is of course by no means the only one interested. Anything connected with the prevention of disease lies also within the province of the public health authorities, and at a time like the present when the scope of their activities is constantly and rapidly broadening, so conspicuous a movement as this is sure to attract their attention and invite their earnest cooperation; in fact there can be no question that eventually the department of child hygiene will be as much a matter of course in the public health work of any large city as the department of contagious diseases is to-day. The danger, if any, is that this may come too soon. It is only natural that the enterprising health officer, whether from real enthusiasm or from desire to make a showing, should reach out after any such promising and popular cause as this, and endeavor to make it his own. Just when the time is ripe for this in any given city must depend largely on local conditions and on the character of the health officer. It is certainly impossible for any health office to do this work effectively until the public has been sufficiently educated to the need of it to be willing to support it properly. This education probably comes best through demonstration by well-organized private philanthropy. The most satisfactory development is perhaps the gradual assumption by the municipality of this private work.

There may perhaps be some question, according to one's conception of the proper sphere of municipal health work, as to whether the municipality should concern itself with the actual supervision of the babies, or limit itself to the dissemination of knowledge as to the dangers that beset the infant by means of literature and instruction in the schools, and to the collection of facts and statistics regarding infant mortality and its causes; and whether the prophylactic dispensaries would not more logically be connected with the children's hospitals or similar philanthropies. Municipal health work is developing so rapidly that this point could hardly be settled now, except by saying that it seems perfectly proper for any one to undertake work of this character who is in a position to carry it out satisfactorily. However all this may be, the prime essential for any enterprise of this character, municipal or otherwise, is good guidance, especially while the whole movement is still so largely in the formative stage. The municipality or the health officer who for political or any other reason gives this opportunity over into unskilled hands is hindering, not helping, the cause. To attempt wholesale teaching of infant-feeding and hygiene and have this teaching any but the latest and best would be a poor service to the community; and no one can determine just what is best and right to teach but the pediatrist who is fully abreast of the latest developments in his specialty.

Pediatrics is a real science and one which is making tremendous strides, especially in these very matters of feeding and hygiene. The best of the specialists have difficulty enough to analyze, assimilate and pass judgment on all the new work and the changing theories. The really competent pediatrists are none too common and the specialty is so new that it is still cumbered, in America at least, by a large proportion of self-styled specialists with no real training in this field, and no good reason for their title except an interest in babies. To leave the education of the public to any of this class would be worse than a mistake. Furthermore, those who have this work in charge are in a position to acquire information and collect evidence of the greatest importance to pediatrics, provided it is gathered by trained pediatrists. To give this chance into incompetent hands would be a lamentable waste of good material. The same arguments apply of course to enterprises conducted by private philanthropy.

It would seem needless to point out that such work cannot safely be left to the nurses alone, if it were not for the fact that this has actually been attempted. So much stress has been laid in all that has been written regarding the prophylactic dispensaries on the importance of the nurse's part that some enthusiasts have been misled into the supposition that she is the only essential. The nurse's position here is precisely the same as in private practice. She is the physician's

invaluable assistant, and she must bear the brunt of the work; but to leave the whole thing to her would be simply to invite, on a large scale, the trouble which we all meet in private practice, when the sole responsibility for the baby's feeding and care has been assumed by the overconfident nurse. It is a tendency to be guarded against rather than encouraged.

The future of the infant welfare movement lies, then, with the pediatrists. It cannot be a real success without their cooperation and guidance, and in proportion as they give it their interest and influence promptly and freely will its healthy advance be rapid or slow. In other hands than theirs it must not only lag behind the progress of pediatrics, but it runs the risk of falling short of promised results and being discredited.

OPPORTUNITIES OF THE MOVEMENT

If the infant welfare movement is so dependent on the pediatrist for success, it cannot be said that it offers nothing in return. Indeed, I think it may be said that it promises to be a most important agent in hastening pediatric progress. First of all, it should do much toward giving the specialty the recognition and prominence which it deserves. By giving wide-spread publicity to the unnecessary loss of infant life and the great need of skilled supervision of every baby, sick or well, and by its demonstrations of what can be done in this way for the children of the poor, it must considerably expand the scope of private pediatric practice and develop a branch of it which is now little enough in evidence. "Welfare work" among the babies of the well-to-do is as legitimate a part of our special field as the treatment of disease, and is really needed. If these babies could be under the same constant, careful observation by competent pediatrists which we insist on for those of the poor in our prophylactic dispensaries, it would redound greatly to their advantage and our credit.

In addition to broadening the field of ordinary pediatric practice, the infant welfare movement is opening up a special branch of pediatrics. Every pediatrist should be acquainted with the general features and tendencies of the movement, but the men who are to direct it in the larger cities, who must of course be pediatrists first of all, and of the best, ought also to have a thorough special knowledge of all the branches and phases of infant welfare work as it is carried on not only in America but also in those continental countries where it was developed earlier and has been more thoroughly elaborated and systematized. It seems quite evident that there will soon be a considerable demand for men who by such training are capable of directing work on a large scale.

Another thing which we may expect from this movement is that it will emphasize the need of better teaching of pediatrics in this country, and of more opportunity for special study. It is no secret that our general practitioners and many of our so-called specialists are deplorably ignorant of pediatrics, especially of that most important part of it, the management of the young baby, and most of our schools offer at present no great opportunity to learn it. Clinics and hospitals for the sick child afford no chance to acquire the necessary knowledge of the handling of the well baby so as to keep it well. The infant welfare movement promises not only to call attention to this need, but also to afford a great chance to correct it by the opportunities afforded in the prophylactic dispensaries for the observation of normal children. Instruction in the management of breast-feeding, which is perhaps more urgently needed than any other, can probably be given better there than elsewhere.

With the bottle-fed baby, the prophylactic dispensary gives us the best opportunity we have ever had to demonstrate what we have so long been preaching — the advantage of simple milk mixtures over complicated formulas and popular proprietary foods, and the utter needlessness of nearly all these. To put the proprietary foods in their proper place is a thing I am sure we have all desired, and good management of our educational campaign should accomplish it. Unskilful management, on the other hand, might have as much the opposite effect as does unskilful feeding in private practice.

We have also in this supervision of the feeding of large numbers of comparatively normal children an unusual opportunity to try out various feeding methods, such as one would hardly get in hospital or private practice. In the large cities, the prophylactic dispensaries under one management have charge of the feeding of thousands of babies and this is usually carried out so far as possible according to a uniform method. Regular observations and weighings are made and good records are, or should be, kept. Such careful compilations of these records as might be made by scientific directors would furnish invaluable material for comparative study of the results of different methods, and might well contribute greatly to progress in infant-feeding.

The prophylactic dispensary is by no means the only phase of the infant welfare movement which is of value to pediatrics. The whole movement involves an intensive study of the causes, immediate and remote, of infant mortality and morbidity, which must not only add considerably to our pediatric knowledge, but must broaden our conception of pediatrics. As it develops, it will give the would-be pediatrist constantly more to learn and make the real pediatrist a fuller man. The tendency of the movement to bring pediatrics into closer touch with all the other specialties and interests concerned in any way with the baby must add fully as much to our knowledge of our subject and be as valuable an incentive to further study and better work on our part as on theirs, and should be welcome to all of us.

SUMMARY

To summarize briefly the points I have tried to make:

The mitigation of the present enormous mortality and morbidity among infants is the most promising field now open to preventive medicine and the infant welfare movement bids fair to become soon the most important of all the wide-spread popular campaigns against disease and its causes.

The whole movement, though it involves many other specialties and vocations than pediatrics, must be of interest to the pediatrist and should be closely followed by him. Its most important phase, however, is directly in his own field. The greatest chance to reduce infant mortality has been shown to lie in educating the public, the mothers and young girls in infant-feeding and hygiene. This work it is the right and duty of the pediatrist to direct and it cannot meet with its full measure of success unless under skilled direction. Whether it be carried on in connection with the health office or the hospital or by independent private philanthropy, the guidance of the thoroughly competent pediatrist is essential to keep it from going wrong. There seems to be some danger of this essential being lost sight of.

The movement offers much to pediatrists. It promises to give the specialty better recognition and to enlarge its field by calling attention to the need of skilled supervision of all babies.

It will demand better teaching of pediatrics.

It offers the pediatrist the chance to demonstrate on a large scale the possibilities of breast-feeding, and when this fails, of simple bottle-feeding without resort to proprietary foods.

It gives an unusual opportunity to try out methods of artificial feeding with the normal child.

It is stimulating a close study of the causes of infant mortality and morbidity which must add much to pediatric knowledge.

It tends to bring the pediatrist into close association with all others concerned with the welfare of the infant, to his benefit as well as theirs.

Finally, it might well be said that the whole infant welfare movement is nothing but the newer and broader form of pediatrics, and should be so considered. Pediatrics, by the nature of the material with which it deals, is better situated than any other specialty for the practice of preventive medicine, and it is at the beginning of life that the systematic application of prophylactic measures can accomplish most and be of the greatest value. We must not neglect our opportunity. Individual pediatrists are taking prominent parts in the movement in many of the cities now, but considering the relative importance of their mutual relations with the movement, the representation of pediatrists in the organizations which are endeavoring to control and guide it is disproportionately small, and there is, so far as I know, no participation by any organization of pediatrists. This condition should not continue. It would seem only natural that every association of pediatrists should be sufficiently alive to the importance of the situation to be formally represented in the National Association for the Study and Prevention of Infant Mortality, and to take a part in its work, as well as in local enterprises, which should lay more emphasis on pediatrics and its essential relation to infant welfare. As it is at present there is in this country no evident connection between two developments which should be inseparable — the growth of pediatrics and the infant welfare movement.

ABSTRACT OF DISCUSSION

DR. CHARLES DOUGLAS, Detroit: The pediatrist is the only one who is capable of directing the public on this subject in straightforward lines of truth that will not require to be reversed in two or three years from this time, which is likely to occur if the progress is from any other source than the pediatrist.

DR. G. R. PISEK, New York: Having been very actively interested in the campaign in New York last winter, I feel that this type of work should not be put into the hands of the health boards of the city too prematurely. Not that they are not the ones to take care of it—logically they are—but we should previously have the work mapped out and organized so that they need only to follow it up and not to develop it. Well-directed philanthropy along these lines is the proper method of procedure. The private organization can show the special need to the city authorities, and then finally help secure an appropriation from the municipality so that the health board can continue the work, and not only keep up the standards set for them, but advance them. I think if that can be done in our cities on a large scale we shall have effective reduction in infant mortality. To do infant welfare work in a small way in a large city is almost a waste. We must have something definite to show at the end of the year, something to prove that we have modified infant mortality.

DR. H. K. HILL, Philadelphia: The physicians of Philadelphia, principally the pediatrists, presented last week what was called a "baby-saving show" in Horticultural Hall, open for ten days, which was directed toward educating the public. There were 17,000 in attendance in one day. Four subsidiary shows were also held in the poorest districts of the city, the first one in a slum district at Third and Catherine streets. There was an attendance of 23,000 in four days. This movement has been so far very successful. There were special exhibits from the government and from charitable organizations covering eugenics, the care of the baby, a miniature milk show—things which suggest themselves in working among the ignorant of the large cities.

DR. COLLINS H. JOHNSTON, Grand Rapids, Mich.: We had a campaign of this kind last summer in Grand Rapids, a city of about 125,000 people, and accomplished a great deal. It was conducted by the authorities of the Blodgett Home for Children. Four or five of the medical men were interested in it and conducted a clinic once a week for babies. We secured from the health office the name of every baby born in the city during the previous year and sent literature to the families. At the end of a year we found that the infant mortality in the city had been reduced 55 per cent. below that of the year before, which, we think, was a very marked showing for the work done. We do not know that it was entirely due to our efforts, as infant mortality varies from year to year. For instance, Dr. Neff has told me that last year was a good one for babies in Philadelphia, but that the year before was a bad one. We do know, however, that our work did a great deal of good.

DR. LEGRAND KERR, Brooklyn: We as pediatrists must recognize the fact that as a class we are not yet very highly appreciated. It is only within the last few weeks that the New York State Society has recognized pediatrists. The general tendency is to make them subservient to the obstetrician. As a specialty pediatry is not yet generally recognized as it should be. If that is true in the profession, it is more emphasized outside, and it does not need much to have the health officer or health boards criticize the work of any of us who may interfere with their particular line of work, or who are not enthusiastic about the particular way in which they carry it out. Dr. Cooley has rightly emphasized the point that this question should not be relinquished readily to health boards or health officers, but should be under the direct and complete control, for a time at least, of pediatrists, until others are equipped to take up the work. Yet in another portion of his paper, Dr. Cooley states that there are too few pediatrists who are well equipped for this work. I do not agree with him. By such a statement we place in the hands of those who are not in sympathy with the stand we take a tremendous power for dealing us a blow in having this work carried on. If the pediatrists are to be recognized by the profession at large, by the public and by the health officers, they must stick together.

MR. WILLIAM A. HOWE, Albany, N. Y.: We in New York believe that you who are doing special work in this line are the ones who should assist us in a concerted effort to reduce the alarming infant mortality so extensively prevalent in every community. With that idea in mind, Commissioner Porter has recently appointed, on his consultant staff, one of the leading pediatricians of the state. He is expected to advise and direct our department in public health matters pertaining to children. As soon as appointed, he prepared a booklet on "How to Save the Babies." This deals with the mother before the baby comes, with the mother and the child when the baby comes, and with the mother and the child after the baby comes. It is brief, yet sufficiently comprehensive to teach the expectant mother, as well as the mother, much of practical value to her not only in preparation for motherhood, but in the care of her child and herself. This little book we hope to be able to place in the hands of every expectant mother in the state or every new mother, as quickly as possible before the birth of her child or after its delivery. Its distribution will be made through the local health officer, physicians and registrar; or any person desiring can apply for a copy direct

to the Commissioner of Health. Many thousands of copies have been circulated and we regard it as one of the most popular and practical movements of the department in educational work.

Health departments need and must have your cooperation as specialists. With it they can accomplish much more than would otherwise be possible, and is not the same equally true so far as you are concerned? While you are assisting us can we not frequently reciprocate? Does not reciprocity in public health work offer one of the greatest opportunities for accomplishing good, and should not physicians and sanitarians be its strongest advocates? I want to appeal to you to cooperate with your local health authorities along these lines and not, as stated by Dr. Kerr, attempt to assume the full responsibility or the full activity in this important public health question, which is one of the greatest with which we are concerned and one capable of the greatest possibilities.

DR. H. M. MCCLANAHAN, Omaha: There is one statement, which if I heard aright, I think ought not to go unchallenged: that the chief result of the milk propaganda had been to indicate that milk was of much less importance in relation to the infant mortality than we had formerly supposed. This is a surprising statement to come from a man who has shown so much familiarity with infant welfare, as Dr. Cooley. In fact, a considerable portion of the rest of his paper largely nullified that statement. How is one going to feed these babies right if he does not start with good, clean milk? Most of the men in this room would agree that one of the most important things in the promotion of this infant welfare movement has been derived from pure milk movements, beginning with the certified milk movement and other influences that go to the improvement of a pure milk-supply. I believe that Dr. Cooley will agree with me that that sentence was inadvertent, and should not be published.

MR. W. A. HOWE, Albany, N. Y.: Inasmuch as several members of your Section have expressed a wish for a copy of the little booklet on "How to Save the Babies" to which I referred, I might add that Commissioner Porter will be pleased to send a copy of the same to any physician present who may designate his desire by writing for it.

DR. T. L. HARRINGTON, Milwaukee, Wis.: This is a new line of work, and as a result some mistakes will be made. It will be interesting for the members present to know the experience we have had in Milwaukee. Some time ago the county medical society started work along this line. Shortly after the advent of the social workers among the poor, a movement was started to bring to the city a social worker to take charge of child welfare work. This work was started in August, 1911, and, under the advice of a committee of physicians, has proved effective and successful. In less than a year the death-rate among infants in a portion of the Polish district in Milwaukee was reduced 60 per cent. This social worker when not a physician is necessarily under the advice and guidance of physicians. A nurse was sent into every home in which it was reported that a baby had been born. The columns of the newspapers of the city were thrown open to the child welfare movement, and a short column on child welfare was printed in every newspaper in the city six days in the week. These articles were furnished by the child welfare commission.

It seems to me that this is a work of tremendous importance. At present the work has been taken over by the health department. The social worker who was at the head has another position, and a physician is to be put in charge. I believe that a physician should be at the head of this work for several reasons. It is not only necessary that he should be a trained pediatrist, but also that he should have a training in social work. It is extremely important that the physician who is the guide in this work should have had some sociologic training. If he is not a student of sociologic conditions he is not going to make a success of this work.

DR. JOHN ZAHORSKY, St. Louis: I want to point out certain weaknesses of the movement. The first is that pediatrists are not agreed on certain things, especially in connection with feeding. There are general hygienic principles, however, which can be carried out. Second, it will not do to put the work in the hands of pediatrists who are not properly trained in this line of work, because the confidence of the people is gradually lost. The work should go slowly, I think.

DR. T. B. COOLEY, Detroit: In answer to Dr. Kerr, I know that I did not say that pediatrists are none too good, but that they are none too common. As to the effect it might have to have such statements go out: in the first place this paper was written for pediatrists. In the second place, some of those instances have already arisen, and it seems to me that the best place to mention them is before a group of pediatrists.

Perhaps I made the statement regarding milk philanthropies a little too bold, but it is true that philanthropies which do nothing but furnish pure milk do nothing to reduce infant mortality. Some have developed into useful philanthropies, because they found they had been accomplishing nothing, and have gone into welfare work.

THE PROPERTIES, USES AND INDICATIONS OF THE VARIOUS CARBOHYDRATES USED IN INFANT-FEEDING *

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In infant-feeding the term "carbohydrate" is applied to a number of compounds related to starch and sugar, which contain carbon united chemically with hydrogen and oxygen, these elements being present in the proportions of two parts of hydrogen to one of oxygen, as in water, H_2O.

Many carbohydrates are known and their common ultimate chemical composition is shown in Table 1, covering carbohydrates employed in nutrition work.

TABLE 1.—CHEMICAL COMPOSITION OF CARBOHYDRATES USED IN NUTRITION

Carbohydrate	Composition			Formulas
	Carbon	Hydrogen	Oxygen	
Cellulose	6	10	5	$C_6(H_2O)_5$
Starch	6	10	5	$C_6(H_2O)_5$
Dextrin	6	10	5	$C_6(H_2O)_5$
Glycogen	6	10	5	$C_6(H_2O)_5$
Cane-sugar (saccharose)	12	22	11	$C_{12}(H_2O)_{11}$
Milk-sugar (lactose)	12	22	11	$C_{12}(H_2O)_{11}$
Maltose	12	22	11	$C_{12}(H_2O)_{11}$
Dextrose (synonyms: diabetic sugar, glucose, grape-sugar)	6	12	6	$C_6(H_2O)_6$

The carbohydrates are used in nutrition for the energy and water they yield on oxidation. As the hydrogen will be satisfied by the oxygen in the compound, all there remains to be oxidized is the carbon. The number of calories a carbohydrate will yield depends, therefore, on its carbon content.

It will also be noticed that the only difference in composition among the various carbohydrates, as shown in the table, is in the amount of water (H_2O) combined with the carbon.

When carbon and oxygen combine, energy and heat are liberated, and as the fate of carbohydrates in nutrition is to be combined with oxygen of the air taken in by the lungs, it is evident that carbohydrates are used to supply energy and heat to the body and are properly classed as energy foods.

The amount of energy a material can supply may be determined directly from the amount of heat evolved when it is burned with oxygen, and it is customary to judge the value of energy foods by the number of calories or heat units a given weight of the food will yield when burned.

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

As there is not much difference among the various carbohydrates in carbon content, and as the hydrogen and oxygen satisfy each other, there is little difference among them in the number of calories they will yield, and in practical nutrition work all carbohydrates are assumed to be interchangeable as far as caloric value is concerned.

All carbohydrates used in nutrition have the same nutritive function and about the same caloric value, but they differ in physical properties (some, as starch and glycogen, being insoluble), in the amount of digestive effort they call forth, in the rate of assimilation, and in fermentability.

Care must be exercised not to judge the availability of a carbohydrate for infant-feeding from its most obvious properties, or decidedly erroneous conclusions may be drawn. For instance, cane-sugar is not directly fermentable, but it is apt to cause fermentation; milk-sugar is not fermentable by pure yeast, but there are times when it cannot be used, because of fermentations. Maltose, on the contrary, is exceedingly fermentable, being used in preference to other carbohydrates in the fermentation industries, such as the manufacture of beer, yet it is used most successfully in infant-feeding and is especially recommended in cases of intestinal fermentation. One of the grand contradictions of nutrition is that the more fermentable a carbohydrate is, the better fitted it is for use when poor digestion and assimilation of carbohydrates are present.

To understand the indications for the various carbohydrates in infant-feeding it is necessary to follow them from the time they are ingested until utilized and excreted.

ASSIMILATION OF CARBOHYDRATES

No matter what form of carbohydrate is taken, if it can be digested it is ultimately changed into dextrose before utilization and carried to the liver where it is converted into insoluble glycogen and stored for future use. If the absorption of dextrose or other carbohydrate is too rapid, the liver cannot convert it into glycogen as fast as it is presented and the excess passes into the urine with resulting alimentary glycosuria. There seems to be some regulative apparatus which prevents the blood containing more than a certain amount of sugar. When the amount of carbohydrates assimilated is greater than is needed to maintain the supply of glycogen in the liver, it is converted into fat, which is a more concentrated energy food than glycogen, having a little more than twice the caloric value, the relative values being 28 to 12.

A small amount of glycogen is found in all the cellular tissues and in the muscles, even in embryos. If there is a demand for energy, as when a muscle contracts or the heart beats, the glycogen of the tissues or muscles is converted into dextrin, maltose and dextrose successively; the carbon of the dextrose is then oxidized and the energy is liberated, heat being produced at the same time. The carbon dioxid produced is excreted by the lungs, and the heat passes off by radiation or is converted into latent heat by the evaporation of perspiration, depending on the temperature of the air.

The performance of work rapidly depletes the supply of glycogen in the muscles, and that in the liver is called on to make good the loss. Glycogen is so nearly like starch that it is called animal starch. Both are insoluble and both are acted on by diastatic ferments forming dextrin and maltose, which are converted into dextrose, the sugar found constantly in the blood. When the glycogen of the muscles is used up during work the enzymes of the liver and blood convert the glycogen of the liver into dextrose, which the blood carries to the muscles where it is reconverted into glycogen. This continues as long as there is glycogen in the liver. When the supply of glycogen in the liver is exhausted, the fat is converted into dextrose and carried to the muscles and changed into glycogen. As is shown by studies in metabolism of starvation, the expenditure of energy depends on the presence of glycogen in the muscles, and for this reason glycogen is found in the muscles long after the supply in the liver has been exhausted and to the end of starvation.

PHYSIOLOGIC PROPERTIES

When it is thoroughly understood that the final product to be produced from the carbohydrates taken as food is glycogen, the order of availability of the various carbohydrates will readily be grasped from the following outline of their physiologic properties:

1. Only fermentable sugars form glycogen.
2. Dextrose and maltose when injected subcutaneously are assimilated because the blood contains enzymes that will convert dextrin and maltose into dextrose. Dextrose and maltose are highly fermentable.
3. Cane-sugar and milk-sugar when injected subcutaneously reappear almost entirely in the urine because they are foreign to the blood and cannot produce glycogen until they have been converted into fermentable sugars in the intestines.
4. The relative order in which sugars are available for forming glycogen is: dextrose, maltose, cane-sugar, milk-sugar.

While dextrose has the highest limit of assimilation, too much of it in the food will overtax the liver and cause alimentary glycosuria, as it cannot be converted into glycogen as fast as it is absorbed.

A certain amount of energy is expended in digesting and assimilating carbohydrates, and their relative food value depends on the amount of energy that must be expended in converting them into dextrose. The reason maltose and cane-sugar have greater availability than milk-sugar is shown by the following illustrations of what takes place when they are rendered assimilable:

$$\text{Maltose} + H_2O = \text{dextrose} + \text{dextrose}$$
$$\text{Cane-sugar} + H_2O = \text{dextrose} + \text{levulose}$$
$$\text{Milk-sugar} + H_2O = \text{dextrose} + \text{galactose}$$

Maltose is completely converted into dextrose by the chemical addition of water and is immediately available; cane-sugar when split up is converted half into dextrose and the other half into levulose, which the enzymes of the blood can convert into dextrose, while milk-sugar is converted into half dextrose and half galactose, which must undergo further change before it can be assimilated. The net energy value of maltose is greater than that of cane-sugar, and the net energy value of cane-sugar is greater than that of milk-sugar.

The tendency for fat to be stored after the liver is filled to its capacity with glycogen readily explains why maltose and cane-sugar, which have a higher net energy value, are more apt to cause fattening than milk-sugar, and why a high maltose content in the food is prone to cause diarrhea — it is crowding the liver too much and must be eliminated.

ADAPTATION OF CARBOHYDRATE TO INFANT'S CONDITION

When an infant is strong and vigorous it has a plentiful supply of glycogen in its tissues and liver, and therefore a reserve of energy. Under these conditions milk-sugar, which is slowest to produce glycogen, acts

well, as it does not overtax the liver or cause alimentary glycosuria or excessive fat production. When an infant is weak or poorly nourished and its reserve of energy is small, there is a demand for rapid production of glycogen. For such infants dextrose or maltose, which can be taken directly into the blood and converted at once into glycogen in the tissues or muscles, where there is a demand for it, are more effective than milk-sugar or cane-sugar. Maltose is particularly available because it is one of the forms through which all the carbohydrates of the body pass before they are utilized. When absorbed, maltose can be changed into glycogen in the tissues or into glycogen in the liver as conditions warrant. It might be said to turn either to the right or to the left as its presence is needed in either direction.

In this connection it is significant that in the process of adult digestion the first product of the digestive secretions is maltose from the starches by the action of the saliva. Since we know that there is a large expenditure of energy during the digestion of a meal, it is fair to infer that Nature intended this energy to come from the food that was being digested and not from energy stored up from a previous meal, and thus provided that the maltose should come from the food and not from the glycogen of the liver. At any rate, it is well established that thorough chewing of a mixed diet renders digestion easier than if the food is bolted.

There can be no question but that by adding products of starch digestion, such as dextrin and maltose, to an infant's food, the same digestive effect is produced as when an adult thoroughly mixes his food with saliva, and that the energy needed for digesting the food can be obtained from the food itself. This may be of advantage when the infant is called on to digest cow's milk, which requires the expenditure of more energy than does human milk, or when the infant is poorly nourished and therefore has no appreciable reserve of energy in the form of glycogen.

In the artificial feeding of infants there are more factors to be considered than the composition of the food and its caloric value, for it has been shown that all carbohydrates have practically the same caloric value, but that they are not equally available, different amounts of energy being called for to render them suitable for assimilation. While it is possible to determine the energy required to render assimilable the food of individual animals experimented on, no law or rule can be established that will apply to all infants, because of individual differences.

A point that should not be overlooked is that the physical condition of the food has a marked effect on its nutritional value even if it is completely digested. Animal experiments have shown that from 40 to more than 100 per cent. of the energy or caloric value of a meal may be expended in digesting it, and Armsby has pointed out that on certain forms of food an animal will die of starvation sooner than if no food at all were eaten, the explanation being that all the energy of the meal and a considerable portion of the stored-up energy are expended in the work of digesting the food.

When infants are fed cow's milk the problem of energy expenditure in digestion is necessarily different from what it is when human milk is given, because of the differences in the physical properties of the milks after being clotted by the gastric secretion. Clinical experience the world over has shown the advantage of having part of the carbohydrates of the food in quickly assimilable forms.

For nearly twenty years I have practiced and taught this truth,[1] and Keller and Finkelstein have also strongly advocated an application of the same principle, though in a different manner.

All have recognized the necessity of altering the physical properties of the curd of cow's milk in some way; and the addition of alkalies, decalcifiers or antacids for doing this by chemical means or the use of gruels for accomplishing the same thing by mechanical means is almost universally practiced. Finkelstein clots the milk and then passes it through a sieve to obtain the same effect.

All these methods of modifying the character of the curd of milk lessen the demand for energy during digestion. When easily assimilated carbohydrates are added to the food so prepared, energy food is made immediately available and the net value of the feeding is increased.

A SCHEME OF INDICATIONS

Conditions so vary with individual infants that I have always believed that the best method of preparing substitute food for them is to use as a basis milk or top milk diluted with cereal gruels of definite strength for the mechanical effect on the curd of the milk, and then by altering the character of the carbohydrates adapt them to the energy and digestive requirements of the individual infant. As glycogen and starch are essentially the same and undergo the same chemical transformations when acted on by diastase, it becomes a simple matter in practice to prepare food in the home that shall call forth all the digestive powers when there is plenty of reserve energy in the infant; and for infants whose reserve of energy is small, a slight change in the method of preparation of the food will alter the availability of the carbohydrates in such a way that the infants will be supplied with such materials as they would prepare in their tissues if they were normal.

These methods are simple, inexpensive and almost universally applicable, but they must be applied with an understanding of the purposes various carbohydrates serve in nutrition. They consist essentially in using gruels made from various cereals as a starting-point and then by means of diastase converting the starch into soluble starch, dextrin or maltose as may be required. The extent of the conversion of the starch is to be regulated by the digestive ability and needs of the infant. A nearly complete conversion into maltose is indicated when rapid assimilation is desired. To obtain the maximum amount of maltose the conversion should take place at about 150 F., but when soluble starch and dextrins are sought the temperature should be about 165 F.

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ABSTRACT OF DISCUSSION

DR. CHARLES DOUGLAS, Detroit: It has been my experience that these children will digest so much curd, irrespective of the addition of the carbohydrate. I have used them both ways, and have been very much impressed with the fact that that subject has received greater prominence than it has deserved. I have watched the effect of increasing the amount of each one alone, and have not been convinced that it is of such great value as is commonly thought. I do not wish to deny that it is beneficial, but I think it is overestimated.

The idea presented by the paper regarding the digestibility or the advantages of digesting starch in different ways brings up very strongly the question of the addition of starch to the

1. Studies in Infant-Feeding, New York Med. Jour., Sept. 16, 1893.

dietary in the dry form at as early a date as it is possible to get the child to take it. This brings us back to the old so-called errors which we have been inclined to attribute to mothers when feeding their infants while nursing, giving them always a little taste of bread or cracker or something else from their own food. We are compelled to recognize the fact that these women have been doing a great deal of good as well as some harm, but there is no doubt of the fact that the giving of the starch in this dry form has a very great advantage over the giving of it in a wet form. This occurs continually in all our work, and I have been so impressed with it that for years I have taught mothers to give a piece of crust just as soon as the child nibbles at it. And as rapidly as the child will take the dry starch to reduce the wet form, I have made this a routine practice.

DR. J. P. CROZER GRIFFITH, Philadelphia: I do not think that Dr. Chapin means to exclude the older plan of treatment: the employment of milk-sugar. There is too great a tendency to-day to the abandonment of this in feeding infants, and toward the using only of malted preparations. It is a pity, perhaps, that we medical men tend so much to run to extremes. There is just now a wave of maltose feeding. It has gone over the country in the last year or two, and over other countries as well. I have for years been a great believer in the use of dextrinized starch in certain cases in infant-feeding. I have long used it, and have obtained excellent results, dextrinizing the starch in the nursery as required. But even before that I had excellent results, as we all have had, with food containing no dextrose or maltose but sugar of milk. The matter is an individual one with the infant. The average healthy infant does not need dextrinized starch, but there are many cases in which it fills a very useful place.

DR. H. D. CHAPIN, New York: The different elements of milk have assumed great importance in the professional mind at various periods. We remember years ago it was all fat, then all casein and curd, and, in the recent year or so, all sugar. My idea in preparing this paper was simply to clarify our ideas with reference to sugar in the food, how we could utilize it, and when the different sugars should be used. I did not mean in any way to recommend that these other sugars should take the routine place of milk-sugar. In fact, the whole paper was merely intended to show how milk-sugar is normally assimilated under ordinary conditions, and also to show how and when these other sugars could become available and temporarily displace milk-sugar. We must have in our hands the knowledge and a method of utilizing these different varieties of sugar for specific cases. I do not usually recommend dextrose for ordinary cases.

THE PRACTICAL IMPORT OF RECENT WORK ON HYSTERIA*

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Whether hysteria is determined, as Breuer[1] thinks, by the occurrence of peculiar dream-like conscious states with a narrowed association capacity, and whether these are purely due to psychically painful experiences as argued by Freud,[2] or whether, following Janet,[3] hysteria is to be summed up as a weakness of the power of associating impressions; or whether it is an actual splitting of consciousness which more or less divides its victims into the exaggeration of many-sidedness known as multiple personality (Sidis[4]); or whether, with Sollier,[5] we conceive hysteria as an inopportune sleep or numbness of a part of the cerebrum, all clinicians agree with Babinski[6] that the most conspicuous and invariable characteristic of a hysterical patient is suggestibility.

As nothing is more detrimental to the progress of science than to call by the same name phenomena which differ in essence, it would be eminently desirable that students of the psychoneuroses should adopt some least common measure for the study of each group; and as it seems quite evident that there is a group of various symptoms, each of which is "susceptible of being produced by suggestion and removed by suggestion-persuasion,"[7] it is strongly to be desired that differences should be sunk for the time being in order that by use of a common, unique and unequivocal character we may collect examples by the correlation of which we may hope to penetrate more deeply into the origin of pithiatism.[8]

That Babinski has fallen back on a teleologic definition[9] of suggestion is to be deplored; for the sense in which he uses the word, that of an insinuation, that is, something evil, is entirely subversive of the essential psychologic mechanism that is connoted by it, and so long ago made clear by Bernheim.[10] The essence of implantation of ideas by suggestion is not their evil nature but the manner of their reception: the subject receives them unaware of how they have gained entrance to the mind.

Elsewhere[11] I have tried to develop the difference between this process and that which may be called persuasion, in which the subject takes full cognizance of the manner in which his belief is caused to alter. A man persuaded knows why he knows: a person who has received ideas by suggestion merely knows. It is the method in which knowledge is acquired by children, savages, many of the uninstructed and the credulous in general. Examples will make clear the manner in which symptoms are acquired by suggestion.

CASE 2.—*Hysterical Obsession and Phobia.*—After an attack of influenza, a woman returning in a crowded car from a shopping expedition began to feel much oppressed and in want of air. The heart, enfeebled by the influenza poison, and we know not what others taken as medicaments and aliments, ceased to respond to the call on it for a more rapid flow of blood so that the aeration could be sufficient and a faint ensued, with the psychic accompaniments of irresistible terror and dread of dissolution. Never since has this woman been able to bring herself to go alone into a car; the very idea of doing so induces the fear of fainting. She is not obsessed by the idea so long as the question of entering a car does not arise; but although she knows her conduct to be unreasonable, she cannot bring herself to act reasonably about going alone into a car.

The suggestibility of children[12] is much more labile than that of adults; for while they are very susceptible, children do not usually hold tenaciously and are easily diverted from their loosely fixed ideas when morbid. For instance, it is perhaps unique for a girl so young as 11 to believe that she is utterly unable to eat, and to

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Because of lack of space a case report and a number of footnotes have been omitted in THE JOURNAL. The complete article appears in the Transactions of the Section.

1. Breuer and Freud: Studien über Hysterie, 1895.
2. Freud: Sammlung kleiner Schriften zur Neurosenlehre, Vienna, 1906.
3. Janet: Automatisme psychologique, Paris, 1889
4. Sidis: Multiple Personality, New York, 1900.
5. Sollier: Génèse et nature de l'hystérie, Paris, 1897.
6. Babinski: Compt. rend. Soc. de neurol. de Paris, 1901.
7. Conférence devant l'internat., Paris, 1906.
8. A neologism coined by Babinski from the Greek words *πείθω*, meaning "persuade," and *ἰατός*, meaning "curable."
9. Babinski: Compt. rend. Soc. de neurol. de Paris, 1908.
10. Bernheim: Hypnotisme, suggestion, psychothérapie, Paris, 1893.
11. Williams, Tom A.: The Difference Between Suggestion and Persuasion, Alienist and Neurologist, 1909.
12. Williams, Tom A.: Management of Psychogenic States in Childhood, Am. Jour. Med. Sc., December, 1912.

believe that strongly enough and long enough to overcome the instinct of hunger to such an extent that she had to be removed for treatment to a hospital; in the Salle Pinel of the Salpêtrière, Professor Déjerine built up her emaciated body by generous feeding, and at the same time undid the false notion she had acquired from her elder sister who had been a patient in the same place.[15]

The cases under the heading of "Treatment," show the mechanism also.

THE ALLEGED TROPHIC SYMPTOMS OF HYSTERIA: HYPERTHYROIDISM: EMOTION

This manner of causation so far has not been proved capable of directly producing edema, erythema, urticaria, ulceration, hematemesis, hyperhidrosis, dilatation or inequality of the pupils, tachycardia, muscular atrophy, or any such vasomotor and trophic disturbances which were formerly included in hysteria; and it is now clear that such cases are due to physical causes[16] which are becoming less and less obscure as pathologic data accumulate. Many of these symptoms are angioneuroses[17] which have nothing to do with either suggestibility or other psychic processes, even emotionalism.

Similarly, the best observers believe that hyperthermia cannot be produced by psychic means at all, although it is now quite clear that a rise of temperature often ensues after the psychic excitation of patients suffering from hyperthyroidism.[18] This, however, is due to the suddenly increased secretion of the thyroid gland, which may sometimes even cause death. But if the patient lives, the temperature soon subsides and its rise cannot be considered psychogenetic in the full sense.

Similarly the arrest of digestive secretion induced by bad news occurs in consequence of the emotion aroused and is strictly temporary[19] unless the emotional state is constantly reinforced from without or within. When the modification endures, we have perhaps the only example of a permanent physical modification of a function not under the control of the will of which the source is directly psychogenetic. Although its genesis is emotional, yet as the emotion may be determined through an idea, and the idea may be implanted by suggestion, it may sometimes be legitimate to attribute to hysteria[20] this form of mental anorexia, in spite of its manifestation through a portion of the nervous system which is mainly autonomic. That the autonomy of the gastric secretion is not complete, however, has been clearly shown by the researches of Pawlow[21] and Cannon;[22] and as no such dependence has been shown concerning permanent changes in the skin and mucous membranes, a better type of evidence than heretofore must be brought forward to convince us of the psychogenesis of the cutaneous manifestations at one time described with hysteria.

Simulation and Hysteria.—I do not wish to do more than remind the reader of the large number of cutaneous eruptions, edemas, fevers, etc., which have been produced by simulators, hysterical and non-hysterical. The desire to deceive for the sport it brings or from no apparent motive is a symptom which may have nothing to do with hysteria. Dupré[23] has created the term "mythomania" to characterize this group of abnormality; and every medicolegal expert and many a schoolmaster knows it well.

The number of those cases which "could not possibly have had access to any means of provoking their symptoms" only indicates the looseness with which such negative evidence is accepted, as for instance in a case of alternating mydriasis which I observed in Babinski's clinic; for though the patient's father indignantly repudiated the mere statement of the fact, it was found that his daughter had been placing in her eye drops of an atropin solution filched from her employer. In another case, a man confessed to concealing a syringe in the rectum, and in a moment of excitement an evacuation revealed two.

Of course, mythomania, a type of moral degeneracy or of lack of adaptation by which resort is made to trickery, may be accompanied by suggestibility as it generally is so that academically speaking, a deliberately produced lesion simulating spontaneous disease which the patient is trying to imitate may deserve the term hysteria; for imitation is one of the forms of suggestion. Intermediate in type are the imitations of disease seen so frequently in the more ignorant hospital attendants and patients. These, too, often figure as hysterics; and indeed this symptom may be induced by suggestion, as in the case of nurses and patients who inflict on themselves eruptions, ulcers and swellings, or complain of palsies, contractures, vomiting of blood, etc., by the imitation of those they have seen in the hospital. The mental debility which allows them so puerile an outlet for their activities permits them also to receive suggestions without criticism — that is, to be hyper-suggestible.

The Stigmata are Artefacts.—Unless their methods of examination act by removing the symptoms before they can be found, so to speak, the experience of Bernheim[24] and Babinski[9] clearly shows that both anesthesia and contracted visual fields and other stigmata, as Charcot called them, originate, in the vast majority of cases, in unconscious suggestions of the medical examination. For over twelve years neither observer has found a contracted field in a patient not previously examined. Either explanation is consistent only with extreme suggestibility.

THE GENESIS OF HYSTERICAL SYMPTOMS

The cause of this has not been inquired into very profoundly by either Babinski or Bernheim; but attempts to account for it have been made by others. The explanation which commands the most notice is that of Freud,[2] who ascribes it to a mental conflict which has arisen as a result of painful experiences in early childhood. It is unfortunate that so many of his followers have attributed the significance of this explanation to sexual insults in themselves; for Freud distinctly says:

> I passed a good way beyond my former point of view. . . . Correct the imperfections, displacements and misconceptions. . . . My former meager material gave a great many cases in which sexual seduction played the main rôle; I overestimated the frequency of these. . . . I have since learned to explain many as an attempted defense against the reminiscence of masturbation.

Freud has also disclaimed his conception that passive behavior predisposes to hysteria in these erotic events,

15. Déjerine: Leçons cliniques, 1907, unpublished.
16. Medicini Bono. Tr. Congrès de Genève, 1907.
17. Solls-Cohen, New York Med. Jour., 1910.
18. Crile: Am. Jour. Surg., 1908.
19. Williams, Tom A.: Southern Psychologic Society, 1909; Jour. Abnorm. Psychol., June, 1910.
20. Williams, Tom A.: The Most Frequent Cause of Nervous Indigestion, Jour. Abnorm. Psychol., February, 1909.
21. Pawlow: The Work of the Digestive Glands, London, 1902; Brit. Med. Jour., 1906.
22. Cannon: Am. Jour. Med. Sc., 1909.
23. Dupré: La mythomanie, Paris, 1906.
24. Bernheim: Comment je comprends le mot "hystérie," Bull. Med., 1907.

while active behavior results in compulsion neurosis. He still believes, however, that the element of constitution and heredity really means "sexual constitution."

Although Freud still attributes the psychosis of obsessions and phobias and also the anxiety neurosis to direct perturbations of the sexual functions, he no longer imputes to this immediate cause what he calls hysteric symptoms, which he agrees are purely psychogenic. He attempts to explain the state of these patients by the subconscious[25] effects of a forgotten circumstance which the patient has been unable to amalgamate with the rest of his mental life, and which he has succeeded in forgetting on account of its painful nature.[26] Its memory can be recalled, however, by his "free association" method, which consists in placing the patient in a tranquil attitude and inducing him to think aloud about the events most nearly connected with his illness, and urging him to push his introspection further back.[27]

Other means of recalling lost memories are the association test of Jung,[28] and the psychogalvanic reaction of Veraguth with which Jung,[29] Petersen[30] and Sidis[31] have largely worked. The last has proved it to be an electromotive muscular change during emotion, occurring only during contraction.

Still better known is the method of hypnosis. The hypnoidization procedure of Sidis[32] seems to me closely similar to that of Freud.

All of these methods have the common property of abstraction from extraneous stimuli, with concentration on the trend of thought required by the physician; in this respect the method of simple anamnestic interrogation is in many cases just as informative when conducted with skill and tact. But it fails in respect to the vividness of the recollections which it recalls. The patient here talks about his experiences. In hypnosis and other distraction methods, the patient reenacts his experiences as he would do in his dreams.[33]

In the treatment of grand hysteria, Sollier[5] has laid great stress since 1892 on the need of the patients in hypnosis to carry themselves further and further back among their infantile experiences. While Freud says, "There is surely something more, think," Sollier urges, "Allez plus loin, plus en arrière." To judge by his early case reports (for he no longer considers it worth while to publish them), the results of his treatment do not show any inferiority which would lend countenance to the assertion of Freud's followers that their method of psychanalysis is a sine qua non in obstinate cases; for these recalcitrant cases are just those which find their way to Sollier.

Now, from these facts it should be apparent that a hysteric symptom is one induced by an idea derived from suggestion, and that empiric methods are worse than futile; for they merely reinforce the patient's belief in bodily sickness.

THE REMOVAL OF SYMPTOMS AND THE TREATMENT OF HYSTERIZABILITY

The search of the pathogen and the discovery and explanation of the causative idea of the patient suffices sometimes to remove the symptom it has caused, but it does not cure the disease. To do this a course of reeducation[34] of the patient's hysterizability is needed. This is not always possible in practice on account of the time and expense required, but we are now in a position to dispense with some of the elements of this expense. I refer to prolonged isolation, overfeeding, massage, electrical applications and special nursing to which so many hystericals have been subjected on account of the secondary "neurasthenic" symptoms they have developed.

I have indicated at length[35] the means of distinguishing this false neurasthenic state from the really primitive asthenia; Bernheim,[36] too, has devoted a recent monograph in part to this distinction, which is, in short, that

25. The term "subconsciousness" has been much abused, but its consideration here would lead us too far; suffice it to say that the submerged memories which determine so much of our conduct and belief can scarcely be said to act in themselves but rather by the inferences which are drawn from them and of which the subject is more or less aware, although he will not always admit their influence. His denial, however, is largely like that of a woman denying that she seeks a husband or of a politician denying that he is looking for an office. If not merely conventional, the disclaimer is dictated by a feeling of shame or by a dislike for the confession which is so good for the soul. A frequent declaration of my patients is somewhat as follows: "I do not know why I am talking like this to you; I would not dare thus reveal myself to anyone else; not another person knows these things that I am telling you; I hardly know them myself," etc. Now, this confession has not been obtained through hypnosis or other special means. In one sense the patient does not explicitly feel her revelations until they are completed. But could the fact that her ideas require for clear formation their focusing into a definite statement justify us in calling them subconscious? I think not, for the process does not differ from the clarification of thought engendered by writing, speaking or other attempts at precision of ideas which before that may have been only in adumbration. Such was the means by which a patient of Flournoy (Automatisme téléologique contre la suicide, Arch. de psychol., 1908, reviewed by me, Jour. Abnor. Psychol., 1909), whom some clinicians would have called a hysteric, made clear to herself for her salvation from suicide the thoughts which lingered in the back of her mind but which had been temporarily overshadowed by her despair in having to repulse her child for fear of infecting it. In a dream state she had a vision of a dear friend leading her away from the water into which she was about to throw herself. Now, although the conversation she imagined was purely hallucinatory, it was none the less valid as a representation to herself of ideas which took this method of formulation. The mechanism is commonly used by automatic writers, crystal gazers, etc., who have recourse to a consultation with an oracle which they sometimes believe to be extraneous in source. Others, however, are equally mystical in the way in which they conceive it to be another self, subliminal or subconscious.

26. But is it really necessary to invoke a specific trauma to explain hypersuggestibility? Is it not a common experience that when the mind is strongly preoccupied by any course of thought, absent-minded acts are the rule? What are these but immediate reactions to stimuli while the reflective processes are occupied by the dominant train of thought? In a sense that which preoccupies the patient is dissociated from the stimulus to which he reacts while absent minded, and indeed from the events of daily life as long as the preoccupied state persists. To this extent hysteria is a phenomenon of psychologic dissociation. This explanation of its mechanism is not especially different from what Freud has called conversion. Psychologically the process is the same as that occurring in suggestion.

27. It has been alleged that Freud and his followers inevitably guide the revelations of their patients toward the ideas of which they are in search and that they strongly influence the content of the patient's thought. This is tantamount to saying that some at least of the patient's ideas arise from the suggestion of the examining physician. When one remembers the ease with which even physical symptoms are suggested, this objection has *a priori* much force in so delicate a field as psychologic investigation. The controversy can be settled only by impartial and well-trained observers working with Freud's method. At all events, it is becoming more and more clear that sexual traumas of early childhood need not produce a psychoneurosis and that at least the active cause of psychoneurosis in some patients appears quite unrelated to the sexual life. One is tempted to believe that the enthusiasm of discovery has tended to an exaggeration of the weight of this etiologic factor, especially in an age in which a reprehensible prudery has prevented its due consideration by the profession at large. But it is significant that French observers, of whom this fault cannot be alleged, do not attach preponderant importance to the sexual factor in neurotic disturbances.

28. Jung: Ueber der Psychologie die Dementia Precox, Leipsic, 1906.

32. Sidis: Boston Med. Jour., 1907.

33. The free association of thought at which Freud aims during psychanalysis is believed by him to resemble that of the dream-state. But neither during the dreams of sleep, nor still less in day-dreams, is there that complete suspension of autocritical judgment one might suppose were only the fantastic nature of dreams considered. Even the bizarre images of the dream are symbols of a latent psychic content often unsuspected by the patient. In the same way he interprets a hysteric symptom as an unconscious conversion by the patient into a physical symptom of a thought which in its naked form he could not bear, and it is in finding of these that psychanalysis is so useful. The suppressed experiences are particularly active in dreams. Hence analysis of these is most useful as a short cut to an understanding of much of which the patient's waking mind is ignorant.

34. Williams, Tom A.: The Nature of Hysteria, International Clinics, 1908. See also Psychoprophylaxis in Childhood, Psychotherapeutics, Boston, 1910, and Jour. Abnorm. Psychol., July, 1909; also Requisites for the Treatment of Psychoneuroses, Monthly Cyclo., 1909, etc.

35. Williams, Tom A.: Arch. Diagnosis, 1909.

36. Bernheim: Neurasthénie et psychonévroses, Paris, 1908.

neurasthenia, a rare condition, is a physical exhaustion either congenital, toxic or other; and that any psychic symptoms a neurasthenic may present are usually secondary and disappear spontaneously as his bodily condition improves; unless, indeed, they are maintained through the reinforcement of their suggestion by the injudicious solicitude of physician or friend.[37]

On the other hand, the neurasthenic symptoms which are induced by a fixed idea of illness soon disappear when the patient's ideas are rectified as illustrated by my case of traumatic neurosis, and by many a woman who has arisen from a sick-bed, when exigencies or her own temper have demanded, into the full activity of normal life.

ISOLATION UNNECESSARY: A "UNICIST" PSYCHOTHERAPY: MONISM

The fetish into which the Weir Mitchell treatment has been erected has been demolished by the recent work of Levy,[38] who shows that Dubois' way of conceiving the relation of body and mind[39] does not differ from the dualism he imagines he has transcended; and Levy points out how grossly and naively Dubois exaggerates the influence of the psyche over bodily conditions. In this respect, Bernheim has long transcended his former views regarding the power of hypnotism. He has done so by acquiring a clear notion of the difference between psychogenic and somatogenic nervous symptoms.

Now, Levy shows that true isolation is not a physical removal from environment, but a moral subtraction from fears, preoccupations, obsessions, morbid ideas; and this can be done even better in the usual surroundings than during isolation. Even that bugbear of the physician, the patient's friends, can be converted into an aid instead of a hindrance, where intelligent people are concerned. The chief appeal for the method of isolation is the power it gives the physician to "persuade" and reason with his patient. But even this Levy believes of little use unless an opportunity is given the patient to practice the resolutions he forms; and as he cannot do this while isolated in bed, such treatment is injurious; for his best intentions will wither like a hot-house plant in the open when he has to face the stresses of his life. One might as well learn to swim on a couch.

Another fault of the "Weir Mitchell" treatment of psychoneuroses, as often applied, is its stress on details: the really important thing is that the patient thoroughly grasps the principles on which his disorder depends, and that he practice himself under the physician's direction in learning to avoid the pitfalls which life affords. He must learn his own psychology, and the dependence of his bodily health on his mental state; but he must also learn that body and mind are only two sides of one thing, that bodily conditions react on his mental state, and that susceptibility to suggestions may be vastly increased by fatigue, dietetic errors or any cause of toxicosis of the neurons. Even prolonged mental stimulation by the excessive interest which does not know when to stop may be a source of a neuronal state favoring suggestibility.

The method of solicitude and sympathy merely reinforces the patient's belief in the validity of the idea for which sympathy is an implicit acquiescence. Still more injurious is direct medical treatment of the apparent physical disorder which results from ideas. For instance, a hysteric monoplegia (a paralysis of one limb induced by the patient's belief that it is disabled) should not be treated by the application of electricity or massage to that limb, or by the giving of an internal remedy which the patient is led to suppose is capable of removing such conditions. It is bad practice,[37] too, to pretend to perform an operation on the patient who believes, for instance, that she is inhabited by a lizard she has swallowed. Sometimes, it is true, a symptom disappears through the suggestion involved in such procedures; but it does so in a small proportion of cases only, is a pure chance, and does not touch the cause; while by ascertaining and removing the root we can generally cure permanently the present symptoms at least.[40]

An illustration of the method is afforded by one of my cases of traumatic neurosis;[41] for this condition is merely the expression of an induced fixed idea of disability, which is recovered from as soon as the pathogenic idea is disposed of.

CASE 3.—After bruising his back by a fall from a car, a railway brakeman remained for six months very lame, and the sensibility of the lower limbs appeared to be lost. His tint had become sallow, and he was dyspeptic and emaciated; he was sleepless, sad and cried much. The neurologic examination (reported with the case[42]) showed that there was no destruction of the nerve elements. The disability was shown by psychanalysis to be a function of the false fixed idea, induced by the belief derived from his environment that such symptoms as he showed could and should follow such injuries as he had had. One sitting sufficed to begin the correction of this false notion; and he himself completed the persuasion, and was able to return to work in a month, as I had predicted.

Beautiful examples of rational as opposed to empiric methods of treating hysteria are the following:

CASE 4.—A woman, aged 28, whom I saw in February, 1911, with Dr. Hardin, to whom she was referred by Dr. Maphis of Warrenton, Va., in the preceding June, had had a chill after which she cried. The next day she felt very weak, and the next day she had pain in the knees, she thinks only in the left, with hyperesthesia. There was also, she says, tenderness of the lumbar spine, and later on in the groin and hip. She was treated by massage, and for four months was relieved. About Christmas-time these pains recurred when her sister visited her. There were then nausea and persistent dull pain in the knees, which caused her to groan in her sleep.

Examination was negative, except that there was great hyperesthesia of both knees and one arm. Also the right abdominal reflex was absent, and the adductor reflex was exaggerated on the same side. I decided that the case was psychogenic, and that afternoon attempted psychanalysis to seek the origin of the psychalgia. I found two suggestive incidents, one being the visit of a sister on the second occasion, the other being the fact that when first attacked her brother had a severe hysteric spell. He had consumption, which she feared. Another fact perhaps significant was that she had been two weeks in a newspaper office during its change of ownership; alone with the man in charge much of the time.

As she could stay in Washington only a short time, I concluded that it would be better to remove the effects of whatever had been the source of the hysteric symptoms by psychomotor discipline than to try to pursue psychanalysis, which might be unfruitful in the short time at her disposal.

Method.—As the least approach toward the patient's knee would set up a spasm of terror during which adductors, hamstrings and extensors went into spasm, I began a course of gradual habituation, first to the approach of a person's hand toward the knee, later to manipulation of the patellar region,

37. Williams, Tom A.: Le rôle du médecin, etc., Compt. rend. congrès des neurologistes francais à Lille, 1906; Am. Med., August, 1908.

38. Levy: Neurasthénie et névroses, guérison définitive en cure libre, Paris, 1909.

39. Dubois: Le traitement psychique de la psychonévrose, Paris, 1904.

40. Williams, T. A.: Chronic Visceral Pain, Surg., Gynec. and Obst., June, 1912.

41. Williams, Tom A.: Tr. Congrès international des accidents de travail, Rome, 1909.

42. Williams, Tom A.: Med. Rec., Oct. 2, 1909.

followed by pressure on it. A sister attended her in hospital and helped her to accomplish these exercises several times each day. In this way she taught herself in a few days to control the muscles around the knee-joints so as to prevent them contracting when her knee was touched. The pain ceased when the spasm did, as it was in part maintained by the latter. Then her alarm vanished, as there was no reason for it; and she was satisfied that her pain lay in her own power to control. The dangers of prepossession by a fear, in conjunction with the mental vacuity engendered by lack of occupation, were explained to show the genesis of false fixed ideas regarding disease, and she was told how to avoid them.

She returned to Virginia in a week well, and has remained so for nearly two years.

CASE 5.—A further case illustrating the effect of proper discipline is that of a barking, roaring and bowing tic removed in one day. The patient was referred to me by Dr. Thomas Charles Martin. He had been treated for rectal ulcer for some months. He had recently removed to North Carolina, but wanted to come back to Washington. It is possible that this had something to do with the development of his condition. I was asked to see him, because when he sat down he would utter a series of barks, while at the same time the trunk would go into a spasmodic flexion. When he was stripped, there were seen strong abdominal muscles and regular bowing of the whole body along with this barking, grunting noise.

Psychanalysis showed that these attacks had begun suddenly in North Carolina at 10 p. m. three months before. The significant fact was that he had eaten sandwiches which had been sent to him by his parents in Washington and that he had been thinking despondently before he went to sleep about how nice it would be to be in Washington. He was also thinking considerably about his intestines having been under treatment by lavage. The exact psychologic mechanism was not discovered, however.

Method.—I thought it better to remove the effects rather than necessarily to discover the details of the genesis of his tic. So I instituted a course of psychomotor discipline. The tic, which at first had come only when he lay down at night, had later occurred whenever he sat down also, and thus made life a burden. So we began by exercising in the sitting position. I placed him in a large chair, reclining, showing him how deliberately to contract the recti abdominis, and made him perform a series of respiratory movements, as well as the series of recti movements. After a few moments he became capable of contracting either the recti or the diaphragm. That being accomplishment enough for one sitting, he was asked to come back the following day. He went home and tried the exercise while recumbent at night. The result was that he came back next morning and said: "Doctor, I am cured. I did not have any spell last night." Two days later, however, he relapsed. But after another discipline, he remained well.

Thus it is simple to remove the effects in this rational way. It is so much better than the rough suggestion often attempted. For example, the last patient had been treated by electricity, which he was assured would remove his spasms. When this failed he was treated by direct suggestion. When this failed he was treated by "the most marvelous remedy known," a drug obtained from some remote country, which was guaranteed to cure. Thus, the most powerful suggestions failed in a case which was in origin suggested and conformed to Babinski's definition of hysteria, "susceptible of production by suggestion." A motor habit had been formed, and the removal of all habits requires reeducation of the patient's volition. Indeed, it is only by its action on the will that suggestion ever succeeds.

Now, although hysteric symptoms are always psychogenetic and have a mechanism the knowledge of which enables the clinician to penetrate to their origin, yet hysterizability varies with bodily states,[43] so that the treatment of hysteria cannot safely be left to those laymen who have arrogated to themselves the title of psychotherapeutists by an assumption which is justifiable only to the minds of dualists and those who attach no validity to the old adage which becomes more and more true as our psychologic knowledge broadens and deepens, *mens sana in corpore sano.*

The application of the principles described in this article is shown in ten cases which I recently reported.[44]

1705 N Street, N.-W.

43. Williams, Tom A.: The Nature of Hysteria, Internat. Clin., 1908.

THE DIAGNOSIS OF TUBERCULOSIS OF THE KIDNEY IN VERY EARLY AND VERY ADVANCED CASES

PROGNOSIS AND TREATMENT *

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It is generally assumed, and I myself once cherished the conviction, that with every surgical tuberculosis of the kidney — even in the earliest stage — albuminuria must occur, and that one would therefore be justified in excluding the diagnosis of tuberculosis of the kidney when the examination of the urine for albumin gives a negative result. But of late years a series of observations has shown me that this is not the case, as we see some cases in which the albuminuria is intermittent, and others in which it seems to be invariably absent.

Among my cases, about 200 in number, I have established the diagnosis seven times in such circumstances.

In reality, cases of this sort are undoubtedly far more frequent, because just the belief of the necessity of albuminuria with tuberculosis of the kidney has surely resulted in most physicians not having thought of or searched for tuberculosis in such cases.

Case 1 is that of a man who, on account of albuminuria, was treated in a medical ward during nine months for chronic nephritis. The albuminuria having ceased, it was thought that the man was cured of the nephritis and he was consequently discharged. A day or two afterward he was admitted to my clinic, without question free from albuminuria, but, as was clearly substantiated, with an enormous tumor on the right side of the abdomen, which proved, at the ensuing operation, to be the right kidney which was completely destroyed by infiltrating tuberculosis, so that literally no kidney tissue was found, this being replaced everywhere by a cheese-like mass. No pus was found; the mucous membrane of the ureter was certainly very inspissated, but there was no sign of obliteration. This is, then, an interesting example of how the urine can, in extremely advanced cases, be free from albumin without closure of the ureter, apparently because all secreting kidney tissue is destroyed. But in most cases the absence of albuminuria has occurred where the tuberculosis of the kidney is of relatively recent date or is strictly limited. It is clear that such patients arrive in the surgeon's hands only when they present other conspicuous symptoms.

44. Williams, Tom A.: Washington Med. Ann., January, 1912; The Post-Graduate, June, 1912.

* Read in the Symposium on Renal Surgery and Pathology in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Because of lack of space this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section.

In a group consisting of three cases (Cases 3, 4 and 5) it was hematuria, with or without pains, which brought them to me. The first case (Case 3) was very interesting, partly because the symptoms had existed during five years, and partly because, even with the removed kidney under our eyes, the diagnosis was doubtful. The patient was a woman of 30 years, who, five years previously, had suddenly begun to suffer from left-sided pains in the loins and from hematuria. The hematuria lasted only for four days, but the pains continued during the following eleven months, the result being that she was daily treated with morphin at the infirmary where she lay. During the following three years she was free from pain, but then the attacks of pain and hematuria recommenced. No trace of albumin was found in the urine, and leukocytes were found only occasionally, while we did not succeed in proving the presence of tubercle bacilli. At the operation on June 3, 1908, I found a whitish-yellow tumor, the size of a nut, protruding from the middle third of the kidney. When the kidney was split, it was seen that the tumor mentioned consisted of pork-like whitish tissue which did not resemble the recognized aspects of tuberculosis, and, furthermore, the upper and lower kidney papillæ were found to be infiltrated with similar tumor tissues. The diagnosis vacillated between carcinoma and gumma, but the microscope revealed typical tuberculosis.

That this tuberculosis which so peculiarly resembled tumor did not involve albuminuria can be explained without any great difficulty. It is more difficult, however, to understand why Cases 4 and 5 showed themselves during a long-lasting examination to be free from albumin, because, in both cases, abscesses and miliary tubercles were found in the kidney at the operation. In Case 4, that of a little girl, 9 years old, the hematuria was severe but painless, and the only symptom left which could be relied on was the discovery of leukocytes in the urine; on the other hand, neither tubercle bacilli nor albumin were found. In Case 5, however, the hematuria was associated with pains in the discharge of the urine, and, as a considerable tuberculosis of the prostate and ulcerations in the bladder were found — though no albumin — it was most natural to think that an ascending genital tuberculosis was in question, but it was not until, on catheterization of the ureter, leukocytes and tubercle bacilli were found in the albumin-free urine from the left kidney that suspicion was centered on this.

In Cases 2 and 7 it was only the attacks of pain occurring in the region of the left kidney which brought the patients to me. All that I had whereon to found my suspicion of tuberculosis in Case 2 was the pus-celled contents of the urine, without my being able simultaneously to prove the presence of microbes of any sort. In Case 7 the diagnosis was rendered still more difficult by finding in the urine of the bladder, in addition to the pus-cells, some Gram-positive coccobacilli. It was only on catheterization of the ureter, when it appeared that the urine from the left kidney contained pus-cells without microbes, that a suspicion of tuberculosis was aroused, and then, by persistent investigations, I succeeded in finding tubercle bacilli. Finally, Patient 6 was one on whom I had several years before performed a right-sided castration for tuberculosis in the testis and epididymis, and who was now admitted with tuberculous left-sided epididymitis. There was no albumin in the urine when he was admitted, but as, later on, a little was occasionally found, I made a cystoscopy, and found a small ulceration in the bladder medially before the orifice of the right ureter, and as, on catheterization of the ureter, leukocytes were found in the urine of the right kidney, an exploratory lumbar incision was made. At the operation I was surprised to find the entire kidney degenerated by small cysts, without there being any macroscopic sign of tuberculosis, while on the other hand, a stricture was found in the ureter.

After the removed kidney had been cut through, only the aspect of a cystic kidney was to be observed macroscopically, but, scattered in this, the microscope revealed small tuberculous foci.

Then there are the cases in which the urine contains visible pus and in which the diagnosis is pyelitis, and the patient is treated with salol, boracic acid or similar remedies. But even the symptoms of cystitis do not by any means always bring the physician onto the right track; the only result is that he often, without a more thorough examination as to what form of cystitis he has here to deal with, blindly attacks, so to speak, the disease with the ordinary cystitis remedies, such as nitrate of silver injection, which is exceedingly painful, entirely useless, and often apparently aggravates the cystitis. These patients are in a still worse plight if, for a short time previously, they have been suffering from gonorrheal urethritis, because the cystitis is then taken to be gonorrheal and treated with protargol or, what is still much worse, with the Janet daily lavage, a solution of permanganate of potash, which appears to have a particularly injurious effect on the mucous membrane of a tuberculous bladder; this treatment, at all events, appears to have had a fatal influence in two of my cases.

All these regrettable errors in diagnosis might be avoided if only physicians fully realized that one ought never to begin the treatment of albuminuria, pyuria or cystitis without first having subjected the urine, sterilely taken from the bladder, not only to a chemical but also to a microscopic and bacteriologic examination.

I am quite aware that it is maintained to be very difficult to prove the presence of tubercle bacilli; even in the newest handbooks, such as Küster's and Wagner's, it is stated that attempts to show the presence of tubercle bacilli in diseases of the urinary tracts are successful in only 10 to 20 per cent. of the cases. With reference to these statements, I can only say that the authors must have adopted unfortunate methods or have not persevered long enough, for when I look over the statistics from all my cases it appears that the assured presence of tubercle bacilli has been successfully shown in 80.7 per cent. of these cases. The method which I have used with such good results is that of Forsell, according to which one lets the aggregate urine of the twenty-four hours precipitate in a separator. The lowest portion of the precipitate which contains the tubercle bacilli is separated, and can then in addition be centrifugally treated before being put under the microscope.

For a practitioner all such circumstantial methods, as a rule, are entirely unnecessary, for simple microscopy with ordinary microbe coloring is sufficient to give him the diagnosis; if he finds pus in the urine but no microbes, the diagnosis of tuberculosis is almost certain; the case is at least so suspicious that the patient must at once be sent to a place where a special examination by experts can be undertaken; for in all other suppurative kidney affections we find numerous easily colored microbes in the urine.

The use of ureter-catheterization, more especially in tuberculosis of the urinary organs, has many enemies, no doubt principally because the art of ureter-catheterization is so difficult to learn, and requires so much time, but also because one is afraid of infecting the pos-

sibly sound ureter; and even if we maintain that this risk, as far as experience shows us, is very slight, yet its existence cannot be denied, and it would be desirable if we could manage with cystoscopy alone, or with segregators. According to my experience, this, however, is entirely impossible. Cystoscopy pure and simple is always uncertain; in some cases we can, of course, see undoubtedly purulent urine flow from the orifice of the ureter and thus be tolerably certain of the kidney in question being affected, but we are then left entirely in the dark as to the state of the other kidney, for a macroscopically clear urine is not by any means synonymous with a normal urine. What cystoscopy, generally speaking, should enlighten us about are alterations in the shape of the orifice of the ureter, swellings, miliary tubercles and ulcerations around the diseased orifice of the ureter. But you will find that the tuberculous alterations in the bladder in only a minority of the cases are localized around the diseased ureter. In some cases you will see that the bladder tuberculosis, in a directly misleading manner, has localized exclusively round the orifice of the sound ureter. You will find cases in which both kidneys are affected, but both ureteric orifices are free from alterations, or in which the tuberculosis has localized round the orifice of the one ureter; but in by far the greatest number of cases you will see that bladder tuberculosis in one-sided kidney affection is spread over both sides or halves of the bladder, sometimes over the whole of the mucous membrane of the bladder.

Therefore, this method ought not to be allowed to take the place of, or be put on a level with, ureter-catheterization, which is the only bloodless method which can give us certain knowledge of the state of the kidneys. It is necessary to warn against the use of segregators, which are so tempting because of the technical simplicity of the method, which any one can apply, while ureter-catheterization requires special training and practice.

The examination of the urine taken from each kidney must be undertaken with great care and judgment; it must be subjected to a thorough chemical, microscopic and bacteriologic examination.

At the Congress of Surgeons held in Berlin in April, 1905, I, for the first time, drew attention to the importance of diagnosticating toxic albuminuria, and in my introductory address to the discussion on nephrectomy in kidney tuberculosis, I mentioned five such cases in which, in spite of a fairly pronounced albuminuria from the other kidney, I had extirpated the tuberculous kidney, and had afterward seen the albuminuria disappear in the course of a very short time, the patients being cured. To these, from subsequent personal experience, I can add eight new cases.

The double lumbar incision has been used by me in thirty of 166 cases, and I have never lost a single patient by this method. In twenty-four cases I ascertained the one-sidedness of the disease, which could not have been ascertained by any other means. I removed the diseased kidney, and in all cases recovery was the result; in one case I found the kidneys healthy; in six cases I ascertained the double-sidedness of the disease; in four of these I closed again without proceeding further; in two cases I undertook ureterostomy to procure relief from pains and to arrest the process of ascending tuberculosis.

One of these cases is of considerable interest. A girl, 26 years of age, was brought to my ward in a very wretched state. The bladder was found to be completely infected by typical tuberculosis, the mucous membrane around both the ureter orifices was ulcerated, and the insertion of the catheter was impossible into either ureter on account of stricture. By palpation the right kidney was distinctly found to be somewhat enlarged; the left kidney could not be felt, but by means of Roentgen rays a big oblong shadow was discovered corresponding to the left kidney. The picture could not decide the question as to whether this was a large calculus or, what I was most inclined to assume, a calcified tuberculous kidney. I decided on exploratory lumbar incision on the right side, whereby I made the following interesting discovery. The appearance of the kidney itself was normal, but the pelvis had expanded to the size of a Tangerine orange; the ureter was distended to the thickness of a finger, the upper serpentine portion of which was thin and transparent, while the ureteric wall from about the middle was found to be at an increasing rate thickened by interstitial ureteritis. I then, in the first instance, brought the ureter forward and formed a ureterostomy by a longitudinal incision on the outer side of the ureter. I carried a drain up into the pelvis and through it drew off a perfectly clear urine, which was free from albumin, and which microscopically contained only a few leukocytes. By sounding the distal portion of the ureter I found an exceedingly narrow stricture, which commenced a few centimeters above its opening into the bladder. The urine was carried through a drain, which had been inserted into the pelvis, down into a glass by the side of the bed, and during the following days it transpired that the other kidney did not yield any urine at all but only some tuberculous pus. In the course of a few weeks I removed the left kidney, which had been completely transformed into a tuberculous putty-like substance. The ureter fistula was kept open until the bladder tuberculosis was cured by phenol (carbolic acid) treatment, of which I shall speak later on. The passage through the ureter was then reestablished, and the kidney has now for six years officiated satisfactorily.

In two cases I punctured an abscess in the kidney as large as a hen's egg.

I have, ever since 1892, systematically undertaken quantitative analyses of urea with all my kidney patients prior to operation, and found that a normal secretion of urea is a safe criterion of a sufficiency of kidney tissue capable of functionating, but that, on the other hand, nothing can be gathered from a reduced secretion, inasmuch as the latter directly or indirectly can be due to the diseased kidney — directly by a purely reflex effect on the secretion of the sound kidney (renorenal reflex), indirectly by the disease actuating the functions of the whole organism. I have shown this in a whole series of cases in which the secretion of urea, after the removal of the tuberculous kidney, from being diminished, quickly rose to normal height. While a normal secretion of urea imparts a very important and satisfactory knowledge, it is, on the other hand, very risky to adduce from a slighter secretion of urea that both kidneys are inadequate; this may serve as a warning to proceed cautiously, but nothing beyond that.

With regard to all the rest of modern kidney-function examinations, I have shown that these are still more unreliable than the urea analysis, for while the latter misleads only by a negative result, both chromocystoscopy (Achard's methylene-blue test, Voelker's indigocarmin), cryoscopy and the phlorizin method are capable of misleading by positive, as well as negative, results. I have, therefore, entirely given up these artificial and complicated methods in favor of the simple and rational quantitative urea analysis, which I make by the aid of Esbach's ureometer.

In recent years, the conception of the prognosis has become so optimistic that several authors maintain that early cases of kidney tuberculosis ought to be treated conservatively — by dietetic measures and with tuberculin, while nephrectomy should be allowed only in very advanced unilateral cases.

In my opinion this doctrine is wrong and very dangerous. First, because we never know whether the case is early or advanced, malign or benign. Behind the slightest, most veiled symptoms the most advanced, the most malignant tuberculosis may be hid, as recently proved by some of my cases. Second, there exists no convincing case of tuberculous kidney cured by conservative treatment. As now the statistics have established that we, by nephrectomy, can save 75 per cent. of all patients operated on, it seems quite clear that nephrectomy is indicated as soon as we have diagnosed a unilateral kidney tuberculosis. In spending the time on conservative treatment you run the risk of spreading the tuberculosis to the bladder and to the other kidney, and thereby destroy the possibility of a radical cure.

If we should define the position of the question at the present moment, I consider that, generally speaking, I can maintain that the possibility of a radical cure is dependent on two conditions: (1) that the point where the tuberculosis originates within the urogenital organs can be radically removed, and (2) that at least the one kidney is sound.

As far as the descending tuberculosis of the urinary tract is concerned, these two conditions of course go together; if only the one kidney is attacked there are chances for a cure by nephrectomy. With ascending urogenital tuberculosis both conditions have to be reckoned with, inasmuch as the tuberculosis here originates in the genital organs, but often secondarily spreads to the kidneys. This double and complicated state of affairs must at the outset make it probable that the prospects of a cure would be considerably slighter with ascending urogenital tuberculosis. The prognosis for ascending urogenital tuberculosis is much more serious than for descending, and this is partly due to the fact that while primary kidney tuberculosis in the great majority of cases is one-sided, secondary kidney tuberculosis is just about as often double-sided as one-sided, and partly to the hopeless course which a breaking through of the tuberculosis from the prostate to the bladder and urethra most frequently takes, attended by extravasation of urine, fistula formations, etc.

If, on the other hand, only the epididymis, vas deferens, and a single kidney are attacked, there is every prospect of cure through the removal of the epididymis and the diseased kidney, even if the bladder should be also attacked. This latter complication, up to a few years ago, was considered so serious that it was looked on as an absolute contra-indication to operation. We know now, through numerous instances, that a slight bladder tuberculosis is frequently cured spontaneously when the place where the tuberculosis originated is removed, but even with extensive bladder tuberculosis, which excludes a spontaneous cure, there is every chance of bringing about a cure by means of treatment with a 6 per cent. phenol solution, with which up to the present time I have cured thirty-four patients.

In all the cases in which, by means of the diagnostic aids I have just described, I have proved that only the one kidney was attacked, I have removed it by nephrectomy. In all, I have performed 145 nephrectomies for kidney tuberculosis with but seven deaths — that is, 4.8 per cent. mortality. There were two deaths in the first fourteen operations, which were performed in 1901 — a 14.2 per cent. mortality — while there have been only five deaths out of the 131 nephrectomies performed after 1901, that is, 3.8 per cent.

I use a long slanting lumbar incision, open the fat casing of the kidney at the back, loosen with great care by means of my rubber-gloved hand the kidney from its bed and possible adhesions, examine and palpate it minutely in order to verify the diagnosis, then draw the ureter forward on my bent left forefinger, tie it up in two places with strong silk thread in order to burn it slowly through with a red-hot thermocautery between the silk threads about 3 cm. below the entrance into the pelvis. I then isolate this from the vessels in the pedicle, which is tied up with strong formaldehyd catgut, after which the kidney is removed by cutting through the vessels. The peripheral end of the ureter is fastened to the skin 1 cm. from the wound-line, whereby I insure the raw surface of the abdomen against any possibility of infection from tuberculosis. Formerly, when I removed as much of the ureter as possible and lowered the stump, the latter often became the starting-point for an exceedingly dangerous diffused tuberculosis in the retroperitoneal tissue and in the abdomen.

In case one or both the epididymides are attacked, an extirpation of the epididymis is performed at the same or a subsequent operation, with the preservation of the testis if the latter be not attacked. As to the severed vas deferens, it is treated in a similar manner as was the ureter: it is sewed forward to the scrotal skin, where it, when the wound is otherwise healed, is kept open as a safety-valve for the tuberculous secretion, which might be in the peripheral parts and in the vesiculæ seminales. I have adopted this method in connection with nephrectomy in a large number of cases and always with good results. If there is tuberculosis of the bladder I wait some time after the nephrectomy to see whether the bladder tuberculosis will heal spontaneously, which I ascertain by performing cystoscopy every fourteen days.

In fourteen cases spontaneous healing resulted simply in consequence of the source of the infection having been removed with the kidney; but in the remaining thirty-four cases there was no such spontaneous healing. Sometimes, contrary to what is generally the case, quite a small tuberculosis was seen to spread incessantly, assuming a very vicious character, but in these cases the bladder tuberculosis was, as a rule, already far advanced when the patient came into the hospital. It is these cases that I have subjected to local treatment with a 6 per cent. phenol solution. This treatment, which to begin with is undertaken every other day, consists in first washing out the bladder with sterilized water, and then injecting 50 c.c. of freshly made, warm, 6 per cent. phenol solution; this is allowed to remain for two or three minutes and comes away as a perfectly milky fluid. These injections are continued until the phenol lotion comes away fairly clear.

The effect of this treatment, which, as a rule, manifests itself astonishingly quickly, is shown by the cessation of the pus secretion and by the clearing of the urine. By degrees, as the urine becomes clearer, the injections are made at longer and longer intervals, and are discontinued when it has been shown by cystoscopy that the mucous membrane of the bladder is healed. This we can see by the ulcerations in the cystoscopic picture being replaced by smooth mother-of-pearl-like cicatricial areas. With wide-spread tuberculosis a six- or eight-weeks'

treatment is, on an average, necessary. If the patient and the physician have the perseverance to carry through the treatment, a cure is certain, subject to two conditions: (1) that the source of infection is removed, and (2) that the tuberculosis is confined to the mucous membrane and has not spread through the walls of the bladder. It is only subject to these conditions that the adoption of this treatment can be at all recommended. The first patient treated in this way, and in whose case the tuberculosis was of an unusually vicious nature and extending over the whole of the bladder, has now been well for five years.

I have of late gone still further in my attempts to save apparently hopeless patients, as, for instance, in the case I have already mentioned while speaking about the diagnosis, in which the double lumbar incision showed me that the tuberculosis had proceeded from the completely destroyed left kidney, traveled through the ureter to the bladder, the mucous membrane of which was completely ulcerated, and from there had again ascended to the right ureter and there produced stricture and distention. In this case I performed extirpation of the left kidney and lumbar ureterostomy on the right side; by doing this I prevented the tuberculosis from ascending to the other kidney, which was still sound. I kept the fistula open until I had cured the bladder tuberculosis by phenol treatment and dilated the ureter stricture. The passage through the ureter was then reestablished, and the patient is still, six years after the operation, living and free from pains of the bladder, the right kidney officiating satisfactorily.

As a palliative operation I use and strongly recommend ureterostomy in cases of double-sided ascending kidney tuberculosis in which stricture with distention of the ureter and pelvis causes great pain. In such cases we not only relieve the patient completely from pain, but, by establishing a free outlet, arrest the upward progress of the tuberculosis, and prolong the patient's life. Neither is it probably altogether out of the question that, at an early stage, an ascending kidney tuberculosis can be cured in this manner. Formerly I used a catheter or drain introduced into and fixed in the ureter, which through the bandaging was carried to a concave-convex bottle which was tied to the lumbar region by a belt, but the frequent escape of the urine by the side of the catheter and the drawbacks resulting therefrom led me to construct a bandage consisting of a small silver capsule fitted with a rubber ring, which, by means of an elastic girdle round the abdomen, is kept tight round the ureter fistula, and from which a small silver tube through a drain leads the urine into a urinal.

I have already mentioned that the group of cases in which tuberculosis is primary in the prostate and from there directly attacks the urogenital organs invading the urethra and the bladder gives an exceedingly bad prognosis, on account of extravasation of urine and the formation of abscess and fistula in the connective tissues of the pelvis. Yet in some cases it is possible to obtain partly curative, partly palliative, results through operative methods.

Where tuberculosis of the prostate has as yet only attacked the urethra, while the bladder is sound, I perform suprapubic cystostomy with insertion of a Pezzer catheter and then extirpate the prostate, removing in connection with the latter the diseased portion of the urethra.

As a palliative measure, I have seen excellent results from suprapubic cystotomy in cases in which a radical operation has no longer been possible.

THE USE OF TUBERCULIN IN THE TREATMENT OF SURGICAL UROGENITAL TUBERCULOSIS *

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My paper is not a didactic or an authoritative scientific exposition of the subject from the point of view of the tuberculin therapist but rather a synopsis of personal experience and opinion from the point of view of the genito-urinary surgeon.

It is sometimes stated that the modern surgeon is so filled with scientific enthusiasm that he loses sight of the human side of his work and only thinks of his patients as cases. I do not believe this is true except in very exceptional instances. I want to emphasize this fact because in tuberculosis, to an extent that is equaled in scarcely any other disease, the social, economic and human factors are of very great importance. This is so because tuberculous patients are, as a rule, young persons who are, or should be, doing each his or her share of the active work of the world. Also because of the often wide-spread destruction of tissues or organs and yet, unlike in cancer, the disease is not necessarily fatal even though total extirpation be proved impossible.

There have recently come to my notice two excellent papers; one by Dr. Paul Thorndike of Boston on renal tuberculosis, and one by Dr. J. D. Barney of Boston on tubercle of the epididymis. Both of these papers are entirely from the point of view of operative surgery. In both the use of tuberculin is mentioned. Dr. Thorndike believes renal tuberculosis should never be temporized with and Dr. Barney only briefly mentions any other than operative treatment. In every other way I entirely agree with the sound, conservative opinions expressed in these papers. It seems ridiculous to believe that tuberculin therapy can heal advanced lesions with considerable breaking down of tissue, nor can it ever be expected to absorb considerable collections of pus. Where there is an abscess or much necrotic material surgical intervention is essential. Where a kidney is a mere sac full of pus it would be a foolish waste of time to do anything but remove it. Where the epididymis or seminal vesicle or prostate is a broken-down mass of purulent necrotic material the knife is the most conservative remedy. Any other course puts the patient's life in jeopardy and is expecting too much resistance to infection of the general organism. On the other hand, there are frequent conditions in which either all the operative surgery has been done which it seems wise to do or in which, for other reasons, operation should be either postponed for a time or is contra-indicated altogether. Perhaps I can best illustrate this by specific instances.

CASE 1.—R. B., male, aged 20, in February, 1911, began to have frequency of micturition while at college in Berkeley, Cal. The patient was examined by Dr. E. McConnell, of San Francisco, who found evidence of tuberculosis of the right kidney and bladder. Bacilli were found in the urine. In May, 1911, the patient consulted me in Portland and I began treatment with tuberculin. Immediate and very marked improvement resulted. Koch's Old Tuberculin, as put up by Mulford, serial dilution No. 1, was the preparation used. Very minute doses were administered without any attempt to reach the limit of tolerance. In fact, every effort was directed to give so small a dose that there should never be any specific

* Read in the Symposium on Renal Surgery and Pathology in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

reaction. I believe this to be of great importance. In August, 1911, the patient returned to college. As it was important for him not to have his course of study interrupted, this was the justification for not at once taking out the offending kidney. Also we were encouraged to continue the tuberculin on account of the extremely favorable result of a few weeks' treatment in the spring and early summer of 1911. On his return to Berkeley he consulted a specialist in pulmonary tuberculosis. I believe that, in the light of later developments in the case, this was a mistake. The patient, however, seemed to have great faith in this specialist and for a time did fairly well. Then the specialist tried the plan of giving him tuberculin in increasing doses up to the limit of tolerance. Occasionally this limit was passed and the boy had fever, chills and other evidences of an overdose. However this method may succeed in pulmonary cases I do not know, but I am convinced it will always make surgical patients worse. I believe the safest guide, as I have repeatedly said before in discussing this subject, is the irritability of the bladder. An overdose is shown by increased pain, frequency and bladder irritability far sooner than the point of the production of constitutional symptoms. Of course, bladder symptoms are not invariably present in renal cases. It soon became evident that the boy was getting worse. In November, 1911, he returned to Portland and I removed the right kidney. Since then his general health has gradually improved. Just after Christmas, 1911, he went to visit his relatives and I have not seen him since. He writes that his condition is good.

I report this case not as evidence of the triumph of the use of tuberculin but because I believe, though I may be mistaken, that the unwise administration of tuberculin by the method of dosage almost or quite up to the limit of tolerance actually precipitated an early nephrectomy which might have been deferred until a more convenient time or possibly avoided altogether.

There is another class of cases which are very troublesome to both physician and patient. In women we frequently see cases of painful and frequent micturition. In those cases in which gonorrhea can be absolutely excluded and in which there is no colon bacillus infection we must seriously consider tuberculosis. We must also exclude traumatism of the urethra from excessive coitus. Modern investigation has led to the conviction that primary bladder tuberculosis is very rare. Many of these cases are undoubtedly dependent on renal tuberculosis, although there are apparently a few exceptions.

CASE 2.—In April, 1910, Miss S., aged 30, single, school teacher, consulted me. She said that for years she had had attacks of painful frequency of urination. Latterly they had been of longer duration and much more troublesome. Examination showed a normal urethra except for some injection and great sensitiveness at the inner meatus and this seemed continuous with a neck of the bladder irritation. There was absolutely no evidence of gonorrhea in the past or present history. Cystoscopy showed a normal bladder except for the injection of the vessels at the bladder neck. The ureter orifices were normal. Ureter catheterization brought normal urine from both kidneys. There were no subjective symptoms of kidney disease. The bladder urine, on the contrary, contained a slight amount of pus and tuberculosis was suspected but the bacilli could not be demonstrated. The application of nitrate of silver and dilatation of the urethra proved effective in giving relief for a time. This patient's work is exacting. She teaches the youngest children in a large public school. Her urinary frequency increased daily from Monday to Friday. The Saturday-Sunday holiday gave a chance for slight betterment of symptoms. She is absolutely dependent on her work. She is unfitted for other employment. It is therefore imperative that she continue her work. As I said, no evidence has been brought forward of kidney disease. In January, 1911, tubercle bacilli were demonstrated in the urine. Tuberculin treatment was begun and persisted in since. There has been marked benefit apparently attributable to this treatment. She is very susceptible to an overdose and only 0.005 c.c. of Old Tuberculin No. 1 can be given without bladder reaction. This means, in my opinion, delay. The good results of tuberculin are undoubtedly more quickly apparent in a patient who can take a somewhat larger dose than this. In the course of time, however, her improvement has been quite marked. In what way could operative surgery have been of benefit in this case? Possibly, as Dr. Thorndike says in his monograph above referred to, the condition will remain about the same for years and later a renal disease will show itself and eventually nephrectomy will have to be done. Time alone will tell.

CASE 3.—I have previously reported the case of a nurse with a very extensive generalized tuberculosis of the abdominal viscera including the bladder and intestines. After two years treatment with tuberculin (Koch's Old Tuberculin) in very small doses she entirely recovered and now, four years after beginning treatment, she is well, back at her work and showing no discoverable evidence of disease.

CASE 4.—The patient, with tuberculosis of the genital tract, was first seen in 1908. At that time he showed very advanced disease and was operated on to eradicate as much disease as possible. Afterwards he was treated for a few weeks with tuberculin. He reported to me in February, 1912. He was apparently perfectly well. There was no evidence of any disease. He felt strong and well and had gained weight.

Another class of cases are those with bilateral renal disease of an advanced type or those showing pulmonary infection in addition to the urinary tuberculosis. These cases are hopeless. Neither operation nor tuberculin nor a combination of the two will cure. If any such patient gets well it is in spite of and not because of treatment. I have never seen such a patient recover. Sometimes one will seem to do well for a time but eventually, in my experience, some fatal lesion develops.

I do not think treatment of any case, in any stage, by tuberculin, is as satisfactory as one could wish it to be. It is just about on a par with bacterin treatment of any other condition. Eventually someone will discover a better method but in the meantime a great deal may be accomplished by using the various preparations of tuberculin. I have tried to show that they are mainly aids to surgical or other treatment and that, even in competent hands, they may be very disappointing. If tuberculins are used without good judgment as to dosage much harm can be done; in fact, often irreparable harm. The exact preparation chosen I believe largely a personal matter. One surgeon will get good results with O. T., another with B. E., and still another with some other preparation. It depends on which the surgeon is most used to working with, because, at all times, in every case, it is necessary to be cautious, patient and watchful and to be guided by the results of personal experience. I have tried the opsonic index as a guide but believe that it merely introduces another element of uncertainty and error without rendering compensating advantages. The symptoms of the patient, carefully observed and properly interpreted, are guide enough. There are almost as many ways of handling tuberculin as there are physicians who use it. It would waste your time if I should tell you any of my tricks of technic because, although they suit me, your own doubtless fit you better and accomplish the same result in the end.

Seventh and Yamhill Streets.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. ROVSING AND WHITESIDE

DR. WILLIAM T. BELFIELD, Chicago: At a clinic given to the American Urological Association in Chicago, in September, 1911, I presented six cases of genital tuberculosis in the male treated with turberculin, as instances of the experience which

during the past six years has convinced me that in genital tuberculosis the knife has no place, except to evacuate débris. Following is a report of one of the six cases I showed at that time:

A man, aged 27, had had one testis removed for tuberculosis. The remaining epididymis was three times as large as the testis; the urine was thick, containing pus, blood and tubercle bacilli, and he urinated every half hour day and night. He had lost 18 or 20 pounds in weight. The advice which he had received from excellent surgeons was to have the remaining testicle, the prostate and the seminal vesicles removed. He received simply tuberculin as treatment, being unable even to secure the benefit of outdoor life. When I showed him to the American Urological Association a year later the man was apparently as well as any who inspected him; the urine clear, the fistulas had healed and his weight had increased. The other cases were not so advanced, but the effects of treatment were equally good. These are illustrations of the experience which has convinced me that the knife has no place in the treatment of genital tuberculosis in the male, except for the removal of débris. I would not, with my present experience, substitute tuberculin for the knife in the treatment of tuberculous kidney.

DR. HUGH H. YOUNG, Baltimore: Dr. Rovsing's method of treating the ureter is somewhat unique. I would like to ask whether he treats the ureter internally at all after the operation, whether it is necessary to treat the ureter while treating the bladder, and whether he attempts to have the fluid from that ureter come out through the wound rather than through the bladder while he is treating the bladder with the phenol (carbolic acid) solution. It seems to me that after excision of a tuberculous epididymis it is extremely important to bring the vas out through the groin, to inject it with phenol or iodoform, and to leave it to drain as long as possible. We have followed Dr. Rovsing's work in regard to the phenol treatment and have not obtained the results he has; I think this is because we have not persisted and done it as frequently as he has. We are perhaps frightened by the pain caused the patient. I do not believe I can report any remarkable results in renal tuberculosis. Certainly in other forms of genito-urinary tuberculosis, particularly if localized, we may sometimes get brilliant results.

DR. GUY L. HUNNER, Baltimore: If we could get the profession at large to appreciate that, if there are a few leukocytes in the urine of a patient with bladder symptoms, and no culture can be grown from the urine, we can almost safely assume that that is a case of tuberculous kidney, it would go a long way toward simplifying the treatment of this disease.

There are a few cases in which there is thickening of both ureters, and with care and patience, we can usually determine which of the ureters is actually tuberculous and which is suffering from interstitial thickening from absorption upward from the bladder. I have had three cases in which I could not catheterize the supposedly good side because of this interstitial ureteritis. I was fortunate enough, however, to be able to catheterize the bad side, and by washing out the bladder thoroughly and collecting the urine I got a fairly good idea of what the supposedly good side was doing, operated in spite of this thickening at the lower end of the ureter, and in each of the cases had a perfect healing of the ureteritis and a disappearance of the cystitis.

DR. THORKILD ROVSING, Copenhagen: I ought to have said in my paper that I treat the ureter very often by injecting phenol solution through the ureter. In most cases it is astonishing to see how it closes up without any treatment, the walls growing together and the tuberculosis healing with building of fibrous tissue.

I keep the ureter open until the bladder is cured to save the patient the pain involved in voiding urine. The urine would irritate, and it is an enormous relief for the patient to be free from that until the bladder is healed. Therefore, I recommend in hopeless cases in which the patient has dreadful pain from the ulcerations in the bladder a ureterostomy, because it does away with all the pain. There is no more need to pass the water through the bladder, and therefore there are no more pains.

DECAPSULATION OF THE KIDNEY*

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During the past few years a great number of decapsulating operations have been performed on the kidneys for the relief of diseases of these organs. The limited resources of medical treatment have called the attention of surgeons to these organs in a special way and have led to surgical procedures which have very little scientific foundation for the undertaking. It therefore follows that the merits of the operation can be determined only by the study of a large number of cases and not by any process of abstract reasoning.

It would not be fair to say that the work has been altogether empirical. The pathologic considerations which have led to decapsulation and incision of the capsule and of the kidney itself have rested on the assumption that freeing the capsule or incising the kidney has a modifying influence on the circulation of the organ and thus brings about an improved nutritive process leading to an ultimate restoration of the kidney to the normal or to relief of the organ from a pressure to the delicate kidney structures whereby its function is resumed and recovery follows, or in less severe and in more chronic conditions the structure of the kidney is saved from damage. It may easily be assumed that considerations like these have influenced surgeons in undertaking decapsulating or decompression operations.

Reginald Harrison of London appears to have been the first to undertake to relieve the intracapsular pressure of the kidneys by a simple incision in albuminuria, hematuria, anuria, pains, etc., of the inflamed kidneys. This was in 1878. His favorable results induced other clinicians to attempt to improve the disturbed functions of the kidneys, improving urination by nephropexy, loosening adhesions, and by ureteroplastic operations.

Le Dentu in 1881 performed a splitting of the capsule of the kidneys to allow the parenchyma of the kidney more expansion.

Following the deliberate clinical work of Harrison and of Le Dentu, other workers undertook to show experimentally what changes actually occurred so far as the kidneys themselves were concerned. N. H. Gifford,[1] in experimental work on decapsulation of normal rabbits and dogs, of dogs with induced nephritis and of dogs with infarcted kidneys but with additional work thrown on them, found the following conditions: In all of his cases the entire thickness of capsule over two-thirds of surface, a certain amount of intracapsular tension in undecapsulated kidneys — normal or nephritic — shown by immediate increase in decapsulated kidneys up to one month after; a decrease to normal complete at six months, congestion of intertubular vessels of cortex, casts three to five days after the operation; no change in renal epithelium after decapsulation, a new capsule very vascular at first two to four times the thickness of the old marked at end of eight days. In six months return to normal new capsule, in part from retroperitoneal connective tissue, also intertubular connective tissue, no new blood-vessels anastomosing with those of the kidney.

* Read in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Because of lack of space this article is somewhat abbreviated in THE JOURNAL. It appears in full in the Transactions of the Section and in the author's reprints.

1. Gifford, N. H.: Experimental Decapsulation of the Kidneys, Div. Surg., Med. School Harvard Univ., Boston, 1903-04; Experimental Decapsulation of the Kidneys, Boston Med. and Surg. Jour., 1904, cli, 37.

G. Herxheimer and W. Hall[2] from animal experiments reach the following conclusions:

1. After decapsulation the capsule forms anew and becomes thicker than normal.
2. There is no anastomosis with the surrounding tissue.
3. Animals stand the decapsulation without any bad effect.
4. Anatomically or clinically no bad effects follow decapsulation.

J. H. Zaaijer[3] from animal experiments with decapsulation of the kidneys and consideration of the functional value of the new-formed capsule, concludes:

Four weeks after decapsulation of the kidneys in rabbits the new capsule anastomoses have a lesser value than in the non-decapsulated kidney, but locally they may have a greater value and especially on those points where the kidney was deeper incised or injured.

Thelemann[4] in a summary on decapsulation of the kidneys made experiments with animals and comes to the following conclusions:

The decapsulation of the kidney does not effect a pernicious influence on the parenchyma of the kidney. A new capsule is formed in a short time. Whether the vascularization of the new-formed capsule is increased or not cannot be definitely decided. In the milder cases recovery ensues; the serious cases end fatally.

Prof. R. Harrison in his original paper preferred incision to decapsulation, as it appeared to be more rational and was followed by better results. I presented the same views[5] in a later communication on the same subject. In support of this, M. Zondek[6] in discussing decapsulation and scarification of the kidney at its clinical value proposes the scarification as superior to decapsulation. He makes slight incisions in the capsule and cortex and recommends this operation for hematogenous abscesses.

The observers thus far cited in relation to the histologic influence of decapsulation or incision on the kidneys do not find any harmful effect on the kidneys and the evidence furnished by animal experiments seems to show in an affirmative way that results of a beneficial nature may be effected at a time when a decompression of the kidneys may be necessary, even if it is shown histologically that the capsule is restored practically to its former condition.

In opposition to the above citations, Stern[7] of Düsseldorf writes of changes in the kidney after removal of the capsule. From experiments with animals the following are his findings:

Six or seven days after the decapsulation of the kidneys in rabbits, the connective tissue shows a new growth in a broad layer. Kidneys injured by the operation showed deep scars in the tissue. In two cases at autopsy a strong connective tissue layer was noticed in place of the removed capsule. In serial section, microscopically a transition of capsule into renal vessels, as assumed by Edebohls, could not be found. The primary disease in the one case was interstitial, in the other, probably luetic; nephritis was more developed in the decapsulated kidney than in the non-decapsulated.

Stern considers it his duty to dissuade practitioners from this decapsulation, according to his experiments with clinical subjects, in cases inclining to new formations of connective tissue. In other cases of nephritis the lessening of pressure on the kidney may cause an improvement, but the total decapsulation has yet to be determined. Stern also says that changes occur in the kidney after removal of the tunica propria. He reports from animal experiments that no cure was effected; improvement was observed in three cases, but the animals died in eight weeks and the others two weeks after the operation.

These experimental and pathologic observations are helpful in predicating the class of cases in which a decapsulating operation should be made, but the final determination must be based on clinical results. My own opinion is that we shall find that experimental findings and clinical results will run very close together. To reach some definite conclusions in relation to the value of decapsulation of the kidneys in certain forms of kidney disease, a very voluminous literature was examined. What has been written on this subject was quite beyond my expectations and it is quite possible that not a little has been overlooked, and some perhaps duplicated.

The study of the literature on decapsulation of the kidneys quickly shows that a consideration of the nature of the lesion in the kidney is of the utmost importance in determining the value of decapsulation. The almost uniform failure to produce any good results in chronic degenerative changes of the kidney led me, as far as possible, to classify the diseases under heads which might include affections of the kidneys in relation to which an argument could be offered in favor of the operation.

DECAPSULATION OF THE KIDNEY IN ECLAMPSIA

I have undertaken first to present such arguments as the literature furnishes on decapsulation of the kidney in eclampsia. I feel warranted in bringing this branch of the subject before this Section in view of the fact that there does not appear to be any line of demarcation between the effects of the operation on kidneys of a patient suffering from eclampsia and those of a patient suffering from any acute congestion of these organs, and that, so far as our knowledge goes, the benefit derived is from the immediate relief of congestion.

Sippel[8] concludes that decapsulation does not exert a direct vasodilating effect; it presumably relieves a certain pressure on the veins and thus improves circulation and diuresis. Sippel[9] also says in relation to decapsulation and splitting of the kidney in eclampsia that in toxic kidneys decapsulation alone is sufficient. If the internal pressure be much increased a splitting of the kidney may be necessary, according to the degree of tension. Sippel assumed that the escape of the edematous fluid from decapsulation restores the circulation in these capillaries. Gminder[10] doubts the correctness of this theory because the escape of such a serum

2. Herxheimer, G., and Hall, J. W.: Ueber die Entkapselung der Niere, Arch. f. path. Anat. and Physiol., 1905, clxxix, 153.
3. Zaaijer, J. H.: Nierendekapsulatie, Nederl. Tijdschr., v. Geneesk., 1905, 2 r., xli, d. 2, 1528; Untersuchungen über den funktionellen Wert der sich nach Entkapselung neubildenden Nierenkapsel, Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1904-1905, xiv, 311.
4. Thelemann: Ueber die Entkapselung der Niere, Deutsch. med. Wchnschr., 1904, xxx, 538.
5. Fairchild, D. S.: Ann. Surg., 1903, xxxvii, 963.
6. Zondek, M.: Die Topographie der Niere, und ihre Bedeutung für die Nieren-Chirurgie, Berlin, 1903, O. Hirschwald, p. 110; abstr. in the Rev. d. Chir., June, 1911; Die chirurgische Behandlung der chronischen Nephritis nach Edebohls, Mitt. a. d. Grenzgeb. d. Med. u. Chir., Gedenkband. Mikulicz, Jena, 1907, 235; Die Dekapsulation und die Skarifikation der Niere und ihre klinische Bedeutung, Med. Klin., 1911, vii, 79.
7. Stern: Ueber Veränderungen an der Niere nach Entfernung der Tunica propria, Verhandl. d. deutsch. Gesellsch. f. Chir., 1904, xxxiii, 189; Ueber Veränderungen an der Niere nach Entfernung der Capsula fibrosa (Dekapsulation nach Edebohls), Zentralbl. f. Chir., 1904, xxxi, 133.
8. Sippel, A.: Die Nierenentkapselung bei puerperaler Eklampsie, Ztschr. f. gynäk. Urol., 1910, ii, 69.
9. Sippel, A.: Zur Nierenaushülsung oder Nierenspaltung bei Eklampsie, Zentralbl. f. Gynäk., 1907, xxxi, 1586.
10. Gminder: Ueber Nierendekapsulation bei Eklampsie, Münchner med. Wchnschr., 1908, lv, 2673.

has never been observed. Nicholson[11] is also of the opinion that decapsulation drains blood directly from the engorged venous plexuses of the anuric kidney and that this relief in the venous counterpressure promptly starts an influx of more arterial blood. Falgowski found that the relief of intracapsular tension hastened resorption of accumulated inflammatory exudate on account of the resulting arterial hyperemia and restitution of the damaged secreting epithelium with the reestablishment of normal circulatory conditions. Petri[12] is of the opinion that decapsulation relieves an existing congestion and furthers the elimination of detached epithelia or other substances obstructing the canaliculi.

Gavriloff[13] from animal experiments with decapsulation of the kidneys in eclampsia and other affections of the kidneys concludes:

1. Diuresis of the decapsulated kidney is increased.
2. The vesicular circulation in a decapsulated kidney is freer and stronger.
3. The diuretic action is better in a decapsulated kidney than in a non-decapsulated kidney.

Ehrenfest[14] holds that according to our present physiologic knowledge such a disturbance in the circulatory conditions of the capillary system influences the secretory function chiefly only qualitatively and not quantitatively. At present, however, the assumed value of decapsulation still rests solely on the belief in its specific diuretic effect. Ehrenfest[14] from experiments with dogs concludes that decapsulation of the kidneys in eclampsia does not increase secretion of urine, and that there is no real ground for the belief that decapsulation is of benefit in post-partum anuria. This skeptical attitude does not apply to certain cases of nephritic kidney in which Ehrenfest holds that the operation may create conditions favorable for the final restoration of structural lesions which have not progressed so far that they are beyond the possibility of repair.

Ernst Runge[15] says that a definite conclusion as to the value of decapsulation in eclampsia cannot now be drawn; that the prognosis is not very favorable. In desperate cases the operation may be performed by skilful hands. Sippel[8] agrees that if other means fail and attacks and coma continue after delivery decapsulation is indicated. Zangemeister[16] says that decapsulation of the kidneys in eclampsia is unwarranted.

A Cordero[17] reports a case of decapsulation of a kidney which was removed a year later for nephralgia. The capsule was completely new formed but contained some thin vessels, which proves that a part of the newformed vessels exist for some time as a result of the decapsulation, certainly not less than a year. If the newly formed capsule is very thick in the beginning it decreases later.

D. Newman,[18] in a paper on "Increased Vascular Tension in the Kidney as a Cause of Renal Pain, Hematuria and Albuminuria," holds that increased vascular tension is due to two causes, the first of which is mechanical, and the second some morbid processes.

M. Zondek[9] in a paper read before the Berlin Medical Society, Dec. 21, 1910, holds that the capsule covering the kidney is rich in elastic tissue and permits swelling of the kidney under varied conditions of the circulation; also that, if the kidney is decapsulated, the new-formed capsule is of firm connective tissue, capable of stretching, and therefore the kidney may be in serious danger in its future functionating. Zondek believes that all of the immediate advantages of decapsulation can be gained by incision to the capsule without any of the dangers of decapsulation.

I have found reports of ninety-two cases with definite results, given from forty-four different operators. Sixty-two of the ninety-two patients recovered; thirty died, giving a mortality of about 33 per cent. I have been able to ascertain that about 30.8 per cent. of all cases of eclampsia, under any treatment, end fatally. I cannot give any fair comparison of statistics for the reason that only in apparently desperate cases was operation performed and we are left almost entirely to individual experiences for conclusions as to the merits of the procedure; it necessarily follows that no one operator will have any considerable number to report.

Alsberg[19] reports four cases of eclampsia treated by decapsulation. Three of the patients recovered and one died eight days after operation from pneumonia. This latter case was included among the fatal cases, perhaps unfairly. Alsberg states that diuresis was increased in every case after decapsulation.

Aubert[20] reports a case of puerperal eclampsia and kidney decapsulation after normal pregnancy and delivery. On the sixth day of the puerperium the patient was taken with eclampsia without previous symptoms; she had thirteen attacks during twenty hours. Decapsulation of both kidneys was done. The attacks did not recur and the patient recovered. Aubert advises immediate operation before complications occur.

Robert Asch[21] reports the case of a patient who recovered after a decapsulation and says:

If the eclampsia is severe, expectant treatment is unwarranted. If delivery has not yet taken place we may await the effect of artificial delivery or cesarean section.

Baumm,[22] after a successful decapsulation for eclampsia, thinks favorably of the operation and will repeat it on the next opportunity. Baumm,[23] another observer by the same name, reports four decapsulations for eclampsia and does not think well of it. He says: "This operation does not affect the activity of the kidneys and does not cure eclampsia."

Bollenhagen[24] reports a recovery after decapsulation and observes that the decapsulation was warranted on account of the almost complete anuria.

11. Nicholson, H. O.: The Physiologic Basis for Decapsulation of the Kidney in Eclamptic Anuria, Edinburgh Med. Jour., 1909, New Series, ii, 456.
12. Petri: De la décortication du rein et de le néphrotomie, Ann. de gynéc. et d'obst., May, 1907, p. 257.
13. Gavriloff, N. G.: Mechanism of the Action of Edebohls' Operation, Decapsulation of the Kidneys in Puerperal Eclampsia and Other Disturbances of the Circulation and Functional Capacity of the Kidneys, Vrach. Gaz., 1909, xvi, 36, 71, 98.
14. Ehrenfest, H.: Renal Decapsulation in Eclampsia; An Experimental Study, Surg. Gynec. and Obst., 1911, xiii, 296; Renal Decapsulation in Eclampsia; An Experimental Study, Tr. Am. Gynec. Soc., 1911, xxxvi, 453.
15. Runge, Ernst: Nierendekapsulation bei Eklampsie, Beri. klin. Wchnschr., 1908, xlv, 2068.
16. Zangemeister, W.: Ueber eklamptische Oligurie, zugleich eine Kritik der Nieren Dekapsulation bei Eklampsie, Ztschr. f. gyn. k. Urol., 1910, ii, 79.
17. Cordero, A.: Sugli esiti remoti della decapsulazione del rene nel l' uomo. Clin. chir., Milano, 1908 xvi. 758.
18. Newman, David: Vascular Tension in the Kidney a Cause of Hematuria and Albuminuria, Lancet, London, 1896, ii, 1758.
19. Alsberg, Paul: Zur Nierendekapsulation bei Eklampsie, Zentralbl. f. Gynäk., 1909, xxxii, 934; Zwei Mitteilungen zum Eklampsiethema, Zentralbl. f. Gynäk., 1910, xxxiv, 6.
20. Aubert: Puerperaler Eklampsie post partum; Nierendekapsulation; Heilung, Gynäkologia Helvetica, 9 Jahrg. Herbstausgabe, Geneva, 1909.
21. Asch, Robert: Nierendekapsulation bei puerperaler Eklampsie, Zentralbl. f. Gynäk., 1908, xxxii, 283.
22. Baumm: Nierendekapsulation bei Eklampsie, Monatschr. f. Geburtsh. u. Gynäk., 1908, xxvii, 260.
23. Baumm: Zur Indikationsstellung der Nierendekapsulation bei Eklampsie, Zentralbl. f. Gynäk., 1911, xxxv, 752.
24. Bollenhagen: Nierenenthülsung wegen Eklampsie, Zentralbl. f. Gynäk., 1910, xxxiv, 1530.

S. Cholmogoroff,[25] after a fatal case, observes:

Another patient was being prepared for decapsulation when the symptoms ceased and the patient recovered without operation; if any operation had been performed with recovery of the patient, the recovery would have been ascribed to the operation.

Essen-Möller[26] appears to think it doubtful whether this operation should be recommended in obstetric therapy.

R. Franz[27] believes that decapsulation for eclampsia is not indicated before delivery is expected, but if coma and attacks continue, the decapsulation must not be delayed.

Vincent,[28] reporting six cases, five recoveries and one death after decapsulation, says that the mortality without decapsulation of the kidneys in eclampsia is not greater than with it, and considers the operation unwarranted.

H. Croom, after reporting a successful case and after citing twenty-six cases with good results, recommends the operation highly.

ABSTRACT OF DISCUSSION

DR. A. C. WOOD, Philadelphia: Although skeptical as to the value of this operation at first, I have become convinced that in certain cases it is of the greatest utility. In this connection I desire to refer particularly to one case. It was that of a boy aged 15, with pronounced nephritis and extreme general edema, under the care of Prof. James Tyson of the University Hospital, Philadelphia. After all medical resources had been exhausted without benefit, at Dr. Tyson's request, I decapsulated both kidneys. The boy was voiding about 6 ounces of urine in twenty-four hours prior to the decapsulation. During the next twenty-four hours the quantity increased to 10 or 12 ounces, and the day after there was another marked increase, and so every day the urine increased in quantity until there was almost a polyuria. The anasarca disappeared, and the boy rapidly recovered; when I heard from him some months ago he was working as a journeyman at the carpenter's trade. Dr. Tyson informs me that while the boy is not entirely free from albumin and a few casts, he is symptomatically well and is doing a full day's work every day. This case was observed with great care and was treated actively and persistently prior to operation without perceptible change, and immediately after the operation improvement began. The case was reported by Dr. Tyson in the *Transactions of the Association of American Physicians* for 1911.

DR. LOUIS E. SCHMIDT, Chicago: I should like to report a case which was demonstrated before the American Urological Association in Chicago a year ago. It was a very marked case of hematuria that had existed for years and had been studied very carefully. No positive diagnosis was made. Dr. Bevan operated on one side and decapsulated. The patient had been cystoscoped and the ureters catheterized previously. It was found following the operation that one side gave off a perfectly clear urine. The patient came under my observation about a year ago. There was a marked hematuria on the side opposite to the kidney operated on. The patient was unable to work on account of the pain, and he was considerably weakened on account of the loss of blood. I kept him under observation for about three months, catheterized both sides frequently, and made all kinds of sufficiency tests. At some future date I shall report the case in detail. I made no positive diagnosis, but operated on the side from which the hematuria continued. I found a kidney comparatively normal in size, but with a great many marked retractions of the capsule. I made a decapsulation in this case, and the result seems almost incredible. The hematuria immediately stopped; that is, hardly any microscopic blood could be found on the first day, and practically none after the third or fourth day, and no blood macroscopically at any time since. There had been no kidney elements in the urine. The patient is still under observation. He has a markedly low blood-pressure. I removed a piece of the kidney large enough for microscopic examination, and it simply showed a chronic interstitial nephritis. It seems strange, however, that there had been no kidney elements present during the course of the bleeding and none since operation.

DR. VICTOR VECKI, San Francisco: My experience with the operation is not very encouraging as to curing any kind of a kidney disease, but I consider it indicated when prolongation of life is desirable. I remember one case in particular: a woman who had had trouble with her husband and was involved in divorce proceedings. There was a matter of a small fortune for a child, and it was really necessary that that woman should live a little longer. The day she was taken to the hospital she passed only 4 ounces of urine. After the decapsulation the amount of urine began to increase considerably. She finally passed 32 ounces of urine, and kept on doing that for several months. Ultimately, she died, as was expected, about four months and seven days after the operation. I am positive that that woman could not have lived another week without the operation. In all the other cases in which I have performed the operation for chronic nephritis or for other nephritic conditions, the improvement has only been of short duration.

DR. D. S. FAIRCHILD, Clinton, Iowa: I have collected reports of all the cases that I could find in the French, German, Italian, English and American literature and have studied them very carefully to determine if it was possible to arrive at a conclusion as to what class of cases should be decapsulated and what should not. This work first came under my observation about ten years ago. During this time I have had four cases of my own in which recovery was complete. They were not cases of Bright's disease; that is, not of the degenerative type.

Examination of the collected reports left me in considerable doubt in many instances whether the case was really a case of degenerative disease of the kidney or whether a case of nephritis, sometimes classified as Bright's disease; whether it was a primary disease of the kidney, an inflammatory or congestive disease of that organ, or whether a degenerative disease associated with cardiovascular changes. As far as I could determine there were no good results from decapsulation in cases in which the kidney had undergone degenerative changes. But the results were good in cases of inflammation of the organ in which the degenerative changes had not gone too far. In some of the parenchymatous cases in which the author said that the kidney had become large and fatty, the operation did no good; the disease may have started out primarily as an infection of the kidney itself, but had gone on so long that degenerative changes had already taken place. I cannot conceive how it would be possible for any decompressing operation to have any influence on kidneys that had undergone degenerative changes, such as a fibrosis, and I have distinctly said so in my observation on this method of treatment.

25. Cholmogoroff, S.: Nierendekapsulation bei Eklampsie, Zentralbl. f. Gynäk., 1910, xxxiv, 947.
26. Essen-Möller: Ein Fall von Nierendekapsulation bei Eklampsie, Zentralbl. f. Gynäk., 1908, xxxii, 499.
27. Franz, R.: Nierendekapsulation bei Eklampsie, Wien. klin. Wchnschr., 1911 xxiv, 447.
28. Vincent: Décapsulation du rein comme traitement de l'eclampsie puerpérale, Lyon Med., 1907, cviii, 1090; Décapsulation du rein comme traitement de l'éclampsie puerpérale, Ann. d. mal. d. org. génito-urin., 1907, xxv, 1632.

Mistrust "Migraines" After 45.—A so-called migraine persisting after the age of 45 or 50 is to be looked on with very grave suspicion indeed. In such cases you will examine the urine and the arteries very carefully; or, some indications of a latent cerebral tumor may be hit on. Mistrust "migraines," then, however "paroxysmal" the attacks may be, however typical the affection may appear if they go on after 45 years of age. I am almost disposed to say curtly, that if in a migrainous person the migraine persists in later life, there is probably a screw loose somewhere in his constitution.—T. Clifford Allbutt in *Clin. Jour.*

RECENT ADVANCES IN OUR KNOWLEDGE CONCERNING THE CAUSES OF GLYCOSURIA*

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Our views concerning carbohydrate metabolism in health and disease are constantly changing. New facts are gradually being added to our knowledge of the subject. In attempting to explain the causes of diabetes we have been forced to abandon various theories in succeeding decades. The accumulated results of innumerable investigators may make obsolete to-day a theory which seemed to hold good yesterday. Profiting by this experience, we must ever bear in mind that we should not be carried away by any new theory that is advanced to explain diabetes, even though it may be based on accurate experimental research.

In all cases of diabetes, with the exception of the experimental phlorizin diabetes, it is generally conceded that the appearance of the sugar in the urine is dependent on the existence of a hyperglycemia. It has generally been held that the glucose content of the blood normally ranges between 0.1 and 0.2 per cent., although Jacobson, working under Cushing's direction in the Hunterian Laboratory at the Johns Hopkins University, believes that these figures are too high and that the normal content is approximately 0.08 per cent. Undoubtedly some regulatory mechanism controls the glucose content of the circulating blood, for in the healthy individual it is found that, even after a meal rich in carbohydrates, the percentage of glucose in the circulating blood remains within very narrow limits. The carbohydrates in the food are stored up after a meal in the liver and muscles in the form of glycogen. Glycogen is believed to be gradually reconverted again into glucose and given up to the tissues as they need it for the production of heat and energy. Whenever the glucose content of the circulating blood rises above the physiologic limit a hyperglycemia results and the excess then passes over into the urine and produces either a transitory glycosuria or a permanent glycosuria, as in true diabetes mellitus.

The explanation of a transitory or a permanent glycosuria therefore rests on the determination of the cause or causes of the hyperglycemia. An excess of glucose in the circulating blood may be conceived as occurring in one of two ways. 1. It may be due to an overproduction of glucose from the glycogen of the liver. 2. It may be due to an inability of the tissues, particularly the muscles, to destroy the glucose, or, in other words, to defective oxidation. Each of these theories has been supported by able investigators in the past, but the trend of opinion at the present time is in favor of the overproduction theory.

THE RELATIONSHIPS OF THE DUCTLESS GLANDS TO CARBOHYDRATE METABOLISM

Investigations in recent years have shown that the internal secretions of the ductless glands have a marked influence on carbohydrate metabolism in health and disease. The internal secretions which have been shown up to the present to possess this relationship are those of the pancreas, adrenals, thyroid, parathyroids and pituitary. Strictly speaking, the pancreas is not a ductless gland, but it incorporates within its substance the islands of Langerhans, which are really ductless glands. According to our present knowledge, it is in these islands that the internal secretion of the pancreas which so strongly influences carbohydrate metabolism is produced. It may be shown later that other ductless glands, such as the thymus, ovary, etc., must be added to the list. The function of influencing carbohydrate metabolism is only one of the numerous activities each of these glands is known to possess.

As Cammidge[1] recently said in a most interesting article bearing on this subject, "It is now believed that chemical correlation and chemical control exists between practically every gland and tissue of the body." It has been possible, in some instances, to isolate the specific chemical activator or "hormone" through which one tissue activates another. It has been shown by Bayliss and Starling[2] that the hydrochloric acid secreted by the stomach acts on the mucous membrane of the upper part of the intestine and gives rise to a substance to which they have given the name "secretin." The latter, when absorbed into the blood, travels to the pancreas and stimulates it into functional activity and causes a flow of its secretion. Other similar examples might be cited.

THE INTERRELATIONSHIP OF THE ACTION OF THE DUCTLESS GLANDS

It will be of interest to discuss at this point the noteworthy results of Falta, Eppinger and Rudinger[3] who have devoted special attention to the study of the interrelationship of the action of the internal secretions of the ductless glands. They believe that the removal of a gland with an internal secretion works in two ways. There is, first, the direct result of the absence of its secretion, and secondly, the indirect effect due to the disturbance of metabolism consequent on its relations to other glands. They hold that the ductless glands may be divided into two groups according to the disturbances of the metabolic functions of the body to which alterations in their secretory activities may give rise. They divide them into (1) an accelerator group and (2) an inhibitory group. To the accelerator group belong the thyroid, the adrenals and the hypophysis, since it has been shown that a study of the reactions of the body to injections of preparations from these organs and observations on the result of experimental interference with their functions suggest that all three increase protein exchange; the adrenals cause mobilization of carbohydrates, and the thyroid causes increased fat destruction. To the inhibitory group belong the pancreas and parathyroids, because it has been shown that both retard protein destruction, the pancreas being the more active; further, both restrain the mobilization of carbohydrates, the pancreas again being the more active of the two. The pancreas also causes a decrease in fat consumption. These investigators have correlated their results and have come to the following conclusions:

1. The internal secretions of the thyroid and pancreas mutually retard each other's activities.
2. The internal secretions of the pancreas and chromaffin system mutually retard each other's action.
3. The internal secretions of the thyroid and chromaffin system mutually increase or accelerate each other's action.

* Read in the Symposium on Genital Pathology and Surgery in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session held at Atlantic City, June, 1912.

* Because of lack of space this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Cammidge, P. J.: Relation of the Ductless Glands to Glycosuria, Practitioner, London, 1912, lxxxviii, 237.
2. Bayliss and Starling: Proc. Roy. Soc., 1902, lxix, 352.
3. Falta, W., Eppinger, H., and Rudinger, C.: Ueber die Wechselwirkungen der Drüsen mit innerer Sekretion, Ztschr. f. klin. Med., 1908, lxvi, 1.

In explanation it may be said that the chromaffin system has reference to those groups of cells which have a particular affinity for the salts of chromic acid. These cells are found chiefly in four situations: (1) they occur in the adrenals, where the largest collection of such cells occurs; (2) they accompany the nerves of the sympathetic system; (3) they occur in abundance in the retroperitoneum; (4) they are grouped together in the pelvis to form the so-called Zuckerkandl organ. For all practical purposes, the word "adrenals" may be substituted for "chromaffin system" in the above classification of the accelerator and inhibitory activities of the internal secretions of the ductless glands.

THE RELATIONSHIP OF THE PANCREAS AND ADRENALS TO CARBOHYDRATE METABOLISM

Owing to the intimate relationships that are now believed to exist between the internal secretions of the pancreas and adrenals and carbohydrate metabolism the functions of these two glands will be considered together.

Although a relationship between the pancreas and carbohydrate metabolism had been suspected for nearly a century, it remained for von Mering and Minkowski[4] to demonstrate in 1889 that complete removal of the gland in dogs was invariably followed by a fatal diabetes, with practically all the features as observed in severe cases in man. They subsequently showed that the diabetes was not dependent on the loss of the external secretion of the glands but rather on the absence of some internal secretion which is poured directly into the blood- or lymph-stream.

Lépine believed that this internal secretion was of the nature of a "glycolytic ferment," whose presence in the circulating blood was necessary for the proper combustion of the glucose of the blood.

In 1900 Opie found that a certain percentage of cases of chronic interstitial pancreatitis were accompanied by diabetes. Histologic examination of the pancreas in all cases in which the gland was sclerosed showed that glycosuria occurred only in those cases in which there was extensive destruction of the islands of Langerhans. Later Opie showed that many cases of diabetes with apparently normal-looking glands macroscopically showed on microscopic examination extensive hyaline degeneration of the islands of Langerhans. This important observation led to two natural inferences: first, that the internal secretion of the pancreas which influenced carbohydrate metabolism was probably produced by the islands of Langerhans; and second, that it might subsequently be shown that many if not all cases of diabetes would probably be found to be due to degenerative changes in the islands of Langerhans. Subsequent investigations have shown that there are many cases of diabetes which cannot be explained in this way, for it has been found that in certain cases of diabetes the islands are intact.

The publication of Cohnheim's[5] experiments in 1903 seemed to afford a satisfactory explanation as to how the carbohydrates are utilized in the body under normal conditions and by inference gave us an explanation of the cause of diabetes. According to his view, in order that carbohydrate metabolism should be properly carried on, it was necessary that some substance in the muscle juice be activated by a hormone contained in the internal secretion of the pancreas. If for any reason this pancreatic hormone be lacking, the glucose would not be utilized in the muscles and would accumulate in the circulating blood, producing a hyperglycemia and a consequent transitory or permanent glycosuria. Although Cohnheim's views were hailed with enthusiasm they have not been universally accepted. It is quite possible that there is some interaction between the internal secretion of the pancreas and muscle juice, which results in the production of a substance which favors the combustion of carbohydrates. More light, however, needs to be shed on this phase of the subject.

Although the influence of the internal secretion of the pancreas on carbohydrate metabolism cannot be questioned, its method of action, as we have already seen, is uncertain. There is a growing belief that the internal secretions of the pancreas and adrenals are complementary to one another and that each exerts its influence on carbohydrate metabolism by regulating the formation of glucose from the glycogen of the liver.

Zuelzer[11] is responsible for the theory, now possessing many adherents, that the internal secretion of the adrenals influences carbohydrate metabolism by "mobilizing" the carbohydrates of the body, particularly of the liver. In other words, unless its action is counteracted, the function of the internal secretion of the adrenals is to set free the carbohydrates of the liver and other tissues, causing a hyperglycemia with consequent glycosuria. Zuelzer further showed that an antagonistic action exists between the adrenal secretion and the internal secretion of the pancreas.

Zuelzer thinks that the internal secretions of the adrenals and pancreas normally react on each other within the liver in such a way as to maintain the normal sugar production from the glycogen and consequently glycosuria is prevented. As Falta, Eppinger and Rudinger[5] have shown, the internal secretions of the pancreas and adrenals mutually retard the action of each other. Thus, when Zuelzer used the liver of a depancreatized dog, the output of sugar in the urine was increased because there was no pancreatic secretion to retard the "mobilizing" action of the adrenal secretion on the glycogen of the liver. In the second experiment, in which the liver from a dog with adrenal diabetes was used, the further increase in the sugar output was due to the "mobilizing" action of the epinephrin that had been used in inducing the adrenal diabetes. He further found that when the function of both the adrenals and pancreas was destroyed glycosuria failed to occur. In the depancreatized dog he found that glycosuria did not occur if the adrenal veins were ligated. In a large number of pancreatectomies performed by Zuelzer, glycosuria always followed except when the adrenal veins were also tied off. He believes that one of the most important functions of epinephrin is its influence on sugar metabolism in the liver.

Accepting for the time being this view of carbohydrate metabolism, the hyperglycemia in pancreatic diabetes is believed to be due to the absence of the restraining hormone normally produced by the pancreas. The "mobilizing" action of the epinephrin consequently causes an overproduction of sugar in the liver with resultant excess of glucose in the circulating blood followed by the inevitable glycosuria.

Undoubtedly the nervous system has a marked influence on carbohydrate metabolism. Owing to the intimate relationship that is known to exist between the sympathetic and autonomic nervous systems and the chromaffin system, it is easy to conceive how psychic

4. Von Mering and Minkowski: Centralbl. f. klin. Med., 1889, p. 394.
5. Cohnheim: Ztschr. f. physiol. Chem., 1903, xxxix, 336.

11. Zuelzer, G., Dohrn, M., and Marxer, A.: Neuere Untersuchungen über den experimentellen Diabetes, Deutsch. med. Wchnschr. 1908, xxxiv, 1380.

disturbances and disturbances particularly of the autonomic system can stimulate the chromaffin system and cause an overproduction of the internal secretion of the adrenal glands, leading to a "mobilization" and overproduction of glucose in the liver and other storehouses for carbohydrates. This would lead to hyperglycemia and glycosuria. It was formerly thought that the glycosuria that resulted from Claude Bernard's puncture of the floor of the fourth ventricle was due to direct stimulation of the liver through its nervous connections. It has been found, however, that if the left adrenal is cut off from the left sympathetic nerve, no sugar appears in the urine after the medulla has been punctured, and it is now believed that the stimulus is transmitted by the left sympathetic nerve to the left adrenal, whence it is passed to the right adrenal by the connecting nerves. As a consequence of the medullary puncture the adrenals secrete more actively and the increased flow of the adrenal secretion in its turn brings about an excessive output of sugar by the liver. A number of toxic influences possibly act in the same way, the glycosuria to which they give rise being partly the result of the action they exert on the diabetic center in the medulla, and partly an effect of their stimulating action on the sympathetic nerves, or on the adrenals directly, thus, in any case, causing hyperfunction of the chromaffin system, with consequent overproduction of sugar by the liver.

THE RELATIONSHIP OF THE THYROID AND PARATHYROIDS TO CARBOHYDRATE METABOLISM

Every observer who has had a wide experience with diseases of the thyroid gland has been impressed with the fact that in hyperthyroidism and hypothyroidism there is a marked disturbance in carbohydrate metabolism. Kraus, Ludwig, Chvostek and many others have observed that spontaneous glycosuria is not uncommon in exophthalmic goiter. Further, it has been shown that the administration of small amounts of carbohydrates in this condition often causes a temporary glycosuria. In other words, in overactivity of the gland the tolerance for carbohydrates is reduced.

On the other hand, in hypothyroidism, myxedema, the occurrence of spontaneous glycosuria is so rare as to practically never occur.

THE RELATIONSHIP OF THE PITUITARY TO CARBOHYDRATE METABOLISM

We are chiefly indebted to Cushing[18] and his associates for the demonstration in the last few years of the fact that the pituitary gland contains in its internal secretion a hormone that has a powerful influence on carbohydrate metabolism. It is thought that one of the functions of the pituitary glands is to preside over the regulation of carbohydrate tolerance. It will be impossible here to give a description of the gross and histologic anatomy of the pituitary gland, but it may be of interest to enumerate the important functions that have been demonstrated to be possessed by its two lobes.

I. FUNCTIONS OF THE ANTERIOR LOBE

1. It influences body growth. If a hypersecretion (hyperpituitarism) occurs during the years of the individual's growth, gigantism results. If the hyperactivity occurs after the individual's full growth has been attained then acromegaly results. If a diminished secretion (hypopituitarism) occurs, a form of infantilism results, to which attention was first drawn by Fröhlich. This condition is known as Fröhlich's syndrome, or "dystrophia adiposa genitalis." It is characterized by small stature, amenorrhea in women, infantile genitalia in both sexes, hypotrichosis, excessive deposition of fat and increased carbohydrate tolerance.

2. Injections of extract of the anterior lobe cause an increase in temperature.

3. Extract of the anterior lobe increases thyroid function.

II. FUNCTIONS OF THE POSTERIOR LOBE

1. Its extract causes an increase in blood-pressure.

2. It is a powerful diuretic.

3. It has a remarkable influence over carbohydrate metabolism.

4. Schaefer and Vincent think it also contains a substance which may lower blood-pressure.

5. Rinon and Delille think that the extract stimulates the function of the adrenals and lessens that of the thyroid.

It is most interesting that the hypophysis, which previous to two decades ago was considered without function, has now been shown to possess so many important properties. Cushing has shown in dogs that the gland is essential to life, for complete removal of the gland invariably results in death. It is believed that it is the anterior lobe that is necessary to life, for its removal alone will produce death. Cushing holds that the secretion of the pituitary passes by way of the infundibulum into the cerebrospinal fluid in the third ventricle, for he has shown that death also occurs if the hypophyseal stalk is excised while the gland is left behind.

It is the influence which the pituitary secretion of the posterior lobe has on carbohydrate metabolism that concerns us most here. It was Cushing and his co-workers who first demonstrated by partial hypophysectomies on dogs that it is the posterior lobe of the pituitary which influences carbohydrate tolerance. It has now been definitely shown that hyperpituitarism, clinically represented by gigantism and acromegaly, is nearly always accompanied by a lowering of the individual's tolerance for carbohydrates resulting frequently in either a transitory or permanent glycosuria. On the other hand, hypopituitarism, clinically represented by the various types of pituitary infantilism, is practically always accompanied by an enormous increase in the tolerance for carbohydrates, so that the patient can ingest from two to five times the amount of glucose and other sugars that a normal individual can without alimentary glycosuria occurring.

It was in 1889 that Marie first pointed out the association of acromegaly with pituitary enlargement, although he had described the disease in 1886. Since 1889 there have been numerous reports of cases in which glycosuria has been found in association with acromegaly. Out of 176 cases of the disease reported in the literature up to 1908, Borchardt found that glycosuria occurred in 35.5 per cent. of the cases. Cushing comments on the discordant results which different observers have found in the study of carbohydrate tolerance in acromegaly. Some observers have found an actual glycosuria, others only a diminished tolerance, and still others a decidedly increased tolerance. Cushing is of the opinion that these discrepancies are entirely dependent on the stage of the disease in which the case comes under observation. He holds that the adenomas or other tumors of the anterior lobe of the pituitary, which cause the characteristic features of acromegaly, also produce hyperplasia and overactivity of the posterior lobe in the early stages (hyperpituitarism), with the result that an excess of the secretion reaches the circulation and a lowered tolerance to carbohydrates ensues. In the later stages a hypoplasia with consequent destruction and lack of secretion of the

18. Cushing, Crowe and Howmans: Bull. Johns Hopkins Hosp. 1910, xxii, 127. Cushing, H., Goetsch, E., and Jacobson, C.: Bull. Johns Hopkins Hosp., 1910, xxii, 165.

posterior lobe occurs (hypopituitarism), with the result that there is an increased tolerance to carbohydrates.

CONCLUSIONS

1. It is unwise, from past experience, to accept as settled any new theory advanced to explain the cause of diabetes mellitus.

2. It must now be accepted as positively proved that not only the pancreas but also the adrenals (chromaffin system), thyroid, parathyroids and pituitary have a very important influence on carbohydrate metabolism.

3. Although lesions of the pancreas have been found in a considerable percentage of cases of diabetes, it is now clear that morbid changes in that organ will not explain all cases, even when alterations in the islands of Langerhans are also taken into account. The essential and primary disturbance may be in one or another of the ductless glands.

4. There is undoubtedly a marked correlation of the internal secretions of the ductless glands. Thus the internal secretions of the adrenals (chromaffin system) and pancreas mutually retard the action of each other. The most recent theory concerning carbohydrate metabolism is that first advanced by Zuelzer and now supported by many physiologists. According to this view, one of the important functions of the adrenals is to "mobilize" or set free the carbohydrates in the liver and possibly in other storehouses also. Under normal conditions, however, this influence is counteracted or exactly balanced by the hormone contained in the internal secretion of the pancreas, and we have a constant normal flow of sugar from the liver. When, however, the chromaffin system is for any reason overstimulated, as it may be through the sympathetic nervous system, there is an overproduction of the "accelerator" hormone of the adrenals; the "retarding" hormone of the internal secretion of the pancreas is more than counterbalanced, the glycogen in the liver is rapidly "mobilized" or set free and a hyperglycemia and glycosuria result. A similar result occurs in the cases of so-called pancreatic diabetes. Here the adrenal hormone may be normal in amount, but owing to the pancreatic disturbance the pancreatic hormone is absent or diminished and again the adrenal hormone is enabled to mobilize the glycogen of the liver.

5. A somewhat analogous explanation may subsequently be found to explain the glycosurias in pituitary and thyroid diseases.

6. The theory that hyperglycemia results from deficient consumption or oxidation of glucose in the tissues has fewer adherents than formerly. It may still be shown, however, that Cohnheim's theory is in part correct. At present the trend of opinion is in favor of the view that the hyperglycemia and glycosuria are dependent on overproduction of sugar in the liver as expressed under Conclusion 4.

23 West Franklin Street.

ABSTRACT OF DISCUSSION

DR. ROBERT T. MORRIS, New York: In some cases of "gall-stones without symptoms" glycosuria is the chief symptom. After removal of a gall-stone or drainage of a septic gall-bladder the glycosuria ceases. One of our best-known New York surgeons suffered from lumbago for years and was incapacitated for work a large part of the time by a glycosuria; when gall-stones were removed the lumbago and glycosuria ceased. This relationship between glycosuria and gall-stones we have assumed to be due to influence on the islands of Langerhans by the gall-stones, the reflex irritation causing a congestion of the pancreas to the point of lessened efficiency. Is that the correct view, or is a toxic impression made on the pancreas by an infected gall-bladder neighbor?

DR. EMIL GOETSCH, Baltimore: In a paper published together with Drs. Cushing and Jacobson in the *Bulletin of Johns Hopkins Hospital*, June, 1911, some facts were pointed out concerning carbohydrate metabolism in hypophysectomized animals, and its relationship to the posterior lobe secretion. The manner of hitting on these facts was interesting. I was studying the growth of dogs after hypophysectomy, and noticed that in cases of total or "near total" removal of the pituitary body there was produced frequently a transient glycosuria, which appeared almost immediately after the operation and disappeared in two or three days. This was inexplicable until we began to test the carbohydrate tolerance of these animals before and after operation. It was found that after removal of the hypophysis either "near total" or even of the posterior lobe there was found invariably an almost immediate great reduction in the carbohydrate tolerance to a point often of spontaneous glycosuria, to be followed in the course of about ten days by recovery of the normal tolerance and then a gradual increase during a period of a week or two more until the tolerance reached often to double the normal. Cane-sugar and glucose were used both by mouth and intravenously in these tests. It was found also that we could reduce this overtolerance by injecting intravenously or hypodermically extract of hypophysis. A comparable action was found to exist in the thyroid gland indicating a similar influence of these two glands at least on some features of carbohydrate metabolism. It is still an open question as to how the pituitary secretion (posterior lobe) exerts this influence. We felt that it was possibly due to some influence on the pancreas or liver. For example, we found that after hypophysectomy the liver cell was filled with fat; there was an apparent transformation of glycogen into fat with storage of the latter. Oxidative processes in the body were also low. There was frequently subnormal temperature which could be made to rise until a definite febrile response of 3 or 4 degrees could be obtained. Then, also, in a number of clinical cases with hypophyseal disease a hyperglycemia was observed. These are a few of the facts concerning hypophyseal activity which bear very closely on the problems of glycosuria as brought out by Dr. Futcher.

DR. T. B. FUTCHER, Baltimore: I am not prepared to give an explanation of the manner in which glycosuria is brought about by an attack of gall-stone colic. Two possible explanations are conceivable. One is that there may be some direct effect on the liver itself, causing it to give up the glycogen in the form of glucose, or it may exert its effect through the sympathetic nervous system, which we know is so intimately associated with the chromophilic system and the adrenals; and there may be at the time a hypersecretion of the adrenals which leads to a mobilization of the carbohydrates in the liver with resultant hyperglycemia. Whether that is the explanation or not, I cannot say.

It was demonstrated in 1859 that puncture of the fourth ventricle led to a temporary glycosuria. Claude Bernard believed that the glycosuria was due to certain impulses sent to the liver. More recent work has shown that that explanation is probably not true. If one severs the nerves going to the left adrenal, a hyperglycemia does not follow the medullary puncture. The latest explanation for the glycosuria that follows certain traumatisms and fractures of the base of the brain is that impulses are sent out by way of the sympathetic system to the left adrenal, and thence to the right adrenal, causing a hypersecretion which mobilizes or sets free the glycogen of the liver producing a hyperglycemia and transitory glycosuria.

Factory Hygiene.—Men think as they are trained to think. Therefore, an educational campaign should precede hygienic changes in factory conditions and processes. Let us make it our business as physicians to teach the cost of the human mechanism, the mechanics of humanity and the extravagance of human waste.—W. Talbot in *Am. Jour. Public Health.*

THE SURGICAL TREATMENT OF CHRONIC SEMINAL VESICULITIS BY VASOSTOMY (BELFIELD OPERATION)*

ROBERT H. HERBST, M.D.
CHICAGO

In discussing the surgical treatment of chronic seminal vesiculitis it might be well to consider briefly the bacteriology of this condition. The bacteria commonly found producing pathologic changes in the seminal vesicles are the gonococcus, staphylococcus, streptococcus, tubercle bacillus and colon bacillus. Although the gonococcus is by far the commonest cause of seminal vesiculitis, the ordinary pus-producing organisms, namely, the staphylococcus and the streptococcus, not infrequently produce an inflammation of the vesicles. It is in these latter cases that faulty diagnoses are commonly made, especially if they happen to occur in old men, or in those who do not give a history of a recent gonorrhea. The tubercle bacillus may invade the seminal vesicles by way of the blood-stream, by direct extension from the upper part of the genital tract or by extension from the urinary tract.

The part played by the colon bacillus in vesicle infections is not very well known, although this germ has been demonstrated as the causative agent in producing infection of the epididymis.

Three distinct conditions are found in studying the pathology of chronic seminal vesiculitis:

1. Cases in which the vesicle condition is complicated by a complete obstruction of the ejaculatory duct, which is attributable either to a stricture or to the duct being blocked by detritus and exudation. In this class the vesicle is virtually converted into a retention cyst.

2. Cases in which there is a partial occlusion of the duct, due either to stricture or to inflammatory swelling.

3. Cases in which the duct is perfectly patent and the inflammatory process is limited to the vesicle.

Although there is little to be found in the literature on stricture of the ejaculatory ducts, Dr. Belfield found the stricture to be unilateral in two cases and bilateral in one case in the consecutive examination of twenty-five dead-house subjects. He has also demonstrated it in the living.

The patency of the ejaculatory ducts seems to me to be a most important point in the choice of treatment for seminal vesiculitis. The common symptoms of this condition, such as a gleety discharge, pain low down in the pelvis and during ejaculation, are well known, but there are many cases in which these symptoms are not pronounced, and in which the patient has symptoms which we are likely to refer to the bladder or the prostate. Given, for example, a man advanced in years, who complains of frequent and imperative urination, with probably some enlargement of the prostate gland, we not infrequently class him as a prostatic when, in reality, he is suffering more from an inflammatory condition of the seminal vesicles rather than from the prostate gland.

Several times in my limited experience it has been my good fortune to have relieved by vasostomy and lavage of the seminal vesicles patients, who were supposed to be suffering from hypertrophy of the prostate, and on whom prostatectomy had been advised. In certain cases, too, vasostomy has relieved symptoms ascribed to an enlarged prostate, just as did castration years ago. Frequently during the first twenty-four hours after performing a vasostomy, a patient who, before the operation, had been tormented by frequent and imperative urination and the usual so-called colic of the neck of the bladder is completely relieved of his symptoms. I think that the explanation of this prompt relief lies in the fact that, by opening the vas, we place the seminal vesicle at physiologic rest. This also probably explains why improvement was observed in certain cases of hypertrophy of the prostate when castration had been performed; in other words, those patients who improved after castration were suffering from disease of the vesicles rather than from disease of the prostate.

Probably one of the most important points in the treatment of chronic seminal vesiculitis by vasostomy is the proper differentiation of cases. It is obvious that not all cases of vesiculitis require surgical interference; also that drainage of the vesicles by making an opening in the vas deferens is not possible in all cases. From a therapeutic standpoint, it might be well to make the following classification:

Class 1. Cases of chronic seminal vesiculitis in which the ejaculatory ducts are perfectly patent.

Class 2. Cases in which there is an atresia or partial occlusion of the ducts.

Class 3. Cases in which there is a complete obstruction of the ducts.

Class 4. Cases complicated by stricture of the vas deferens high up.

The cases in Class 1, namely, those having patent ejaculatory ducts, can easily be selected, owing to the fact that they can be readily emptied by pressure of the examining finger in the rectum. Most of these cases will respond to stripping and instillations and do not require any operative interference.

The cases in Classes 2 and 3, in which there is either a partial or a complete occlusion of the ducts, are those in which the only hope for cure lies in some operative measure — vasostomy, incision or excision of the affected organ. During the last few years I have completely abandoned the method of stripping the vesicles in all cases in which they do not readily empty on pressure in the rectum over the vesicles. I believe that failure of the vesicles to empty on pressure in the rectum is usually an indication that there is either a partial or a complete occlusion of the ejaculatory ducts, and that stripping of such a vesicle will force the infected contents into the vas, which is commonly followed by an epididymitis.

Vasostomy is also a valuable measure in the prevention of recurring attacks of acute epididymitis. Patients in this condition sometimes feel distress and pain along the inguinal canal and the region of the external ring, even before the epididymis is infected. An opening into the vas at this time may succeed in preventing a subsequent infection of the epididymis.

In cases of Class 4, in which there is a stricture high up in the vas, it is perfectly clear that one could not hope to obtain either drainage or lavage of the vesicle, because the obstruction is proximal to the opening in the vas. These cases, however, are comparatively rare. Aschoff, in the examination of one thousand subjects, found unilateral stricture of the vas deferens in seventeen cases and bilateral in six cases.

The simplicity of technic in vasostomy indicates it as the operation of choice when surgical measures are deemed necessary for vesiculitis. The technic of vasostomy is too well known to require description. There are, however, two points that might be emphasized:

* Read in the Symposium on Genital Pathology and Surgery in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. The vas should be well fixed against the posterolateral wall of the scrotum before the initial incision is made.

2. The vas should be entirely stripped of its sheaths before incising it.

These precautions will assist one in finding the lumen of the vas for subsequent injections into the vesicles. In cases in which the indications for a vasostomy have been correctly observed, the results are uniformly good. The question as to whether the vas deferens is patent after a vasostomy may arise in the minds of some. There is very little reason why the tube should not remain patent when we reflect that the incision into the vas is a small longitudinal one. I am satisfied that strictures following this operation are rare, as I have had opportunities of examining the semen of five of my patients with bilateral stricture and have found spermatozoa in all of them. I do not believe, however, that the question of sterility should enter into consideration, providing that the indications for the operation previously existed. Knowing that the vast majority of these cases are postgonorrheal and that they refuse to respond to the old method of stripping the vesicles; and knowing, too, that these subjects are a constant menace to every woman with whom they cohabit, who in many instances is the innocent wife, it is my contention that if the vas was blocked in every man on whom vasostomy was performed the operation would still be indicated.

I am satisfied that patients with postgonorrheal vesiculitis are the most common carriers of gonococci to the marriage bed, and I repeat that, if once in a large number of cases we should happen to block the vas of an individual by vasostomy, it would be far better than that he should marry with his seminal vesicles contaminated with gonococci.

This report includes 104 operations on eighty-eight patients, thirty-two of my cases being bilateral; eleven were due to the ordinary pyogenic organisms; seventy-seven were of the postgonorrheal type. The vas was kept open for from seven to twenty-one days. Injections were made daily; in a few instances, twice a day for the first few days after operation. The mild silver salts were first used and were followed by the more astringent salts. Of the eighty-eight cases, fourteen passed from my control before I could ascertain results. Of the eleven cases due to ordinary pus infection, ten are cured; one patient still complains of colic following urination, though he affirms that it is less severe than before the operation.

I was able to control sixty-three of the seventy-seven postgonorrheal cases. The gonococcus was demonstrated in the gleety discharge, in the expressed secretion from the prostate and vesicles or in the ejaculated specimen of semen. In the event that the cases were complicated by a stricture, folliculitis or prostatitis, these conditions were treated before the operation was performed. The duration of the postgonorrheal condition varied from three months to eight years.

Many of the older cases had gone through several acute exacerbations. Forty-one of the sixty-three patients were cured by vasostomy; i. e., their symptoms disappeared and I was unable to demonstrate the gonococcus either in the expressed prostatic and seminal secretion or in the ejaculated seminal discharge. Of the twenty-two cases that did not clear up after the operation, three patients were free from gonococci, but still complained of some pain and frequency of urination. One of these, however, improved after a thorough course of massage of the prostate. Of the nineteen cases in which gonococci were still present after vasostomy and lavage, seven cleared up after massage and instillation into the posterior urethra. In twelve cases I was unable to eliminate the gonococcus. It is my opinion that in some of these the gonococcus was harbored in some of the inaccessible recesses of the prostate gland.

If I may be allowed to eliminate the fourteen cases that passed from my control, in fifty-one of the seventy-four cases the cure may incontestably be attributed to vasostomy, which is a percentage of 67. This may not appear at first sight to be a strikingly high proportion, but if the class of cases be taken into consideration I am certain that most of them would heretofore have been designated as cases of incurable postgonorrheal seminal vesiculitis.

SUMMARY

1. Symptoms referred to the bladder and prostate are frequently relieved by vasostomy.

2. In certain cases vasostomy has relieved symptoms ascribed to an enlarged prostate, just as did castration years ago.

3. Vasostomy is especially indicated in cases in which we have to deal with either a partial or a complete occlusion of the ejaculatory ducts.

4. This operation gives a fairly high percentage of cures in a class of cases which must either be relegated to the incurable heap or be subjected to a far more dangerous and difficult surgical procedure.

I take this opportunity to thank Dr. Belfield for my early instruction in this work, and for his ever-willing consent to the use of the material in our clinics at Rush Medical College and the Chicago Policlinic.

32 North State Street.

PARANOID TYPE OF INSANITY WITH JACKSONIAN CONVULSIONS: SYPHILITIC CEREBRAL PACHYMENINGITIS; THE MICROSCOPIC FINDINGS *

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F. C., a colored man aged 42 years, was arrested Sept. 5, 1910, while sleeping in a new school building, but because of his strange statements he was taken to the psychopathic wards of the Philadelphia General Hospital; from there he was transferred to the Insane Hospital, September 9, where he developed jacksonian convulsions and died about three months later. The cause of his mental state was not determined clinically.

For some time previous to his detention and until he died, certain fixed delusions persisted in the mind of this patient. He stated that the new school building in which he was arrested had been fixed up for him by God's orders and that it was to be called God's Angel's Temple. He drank at times but he had not been drinking for several months previous to his detention at the hospital. About a week after he had stopped drinking, he said he heard God call his name and say: "You are free from sin; you shall live and never die; you shall never go hungry and you shall never go naked." Because of his shouting his friends thought he was crazy from drink and he was arrested; shortly afterward he became quiet and he was released. After this "call" from God he stopped work. He said God talked to him both day and night and told him secrets; but what these were he would not reveal.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Laboratory of Neuro-Pathology of the University of Pennsylvania and the Philadelphia Hospital for the Insane.

His mental examination at this time showed no disorientation; he had hallucinations of hearing, believing that he heard God's voice; his delusions were shown by his belief that the schoolhouse had been built for him by God's orders and that he was God's angel. He stated that he did not have enemies, was not possessed of much physical strength and was not wealthy; in fact, he talked sanely about all other matters.

The points of interest in his physical condition were: unequal pupils, the left being slightly the larger; slight tremor of the muscles about the mouth; deviation of the tongue slightly to the left; enlargement of the inguinal glands, and several scars over the shins.

While talking to his physician, Jan. 13, 1911, he said: "I am going to have a fit; I had two of these last night;" he then had a seizure. There was involvement of the left side of the face and left arm without any disturbance of consciousness. The convulsions of the night before were his first seizures. After this he had several isolated convulsions and on April 3, was seized by a series of fits, which involved the whole left side of the body. At one time he had 200 convulsions in sixty hours and these were followed by a left-sided exhaustion paralysis. The seizures were for the most part confined to the left side and were clonic in type, but they were never attended by the loss of consciousness. A warning always preceded them and this the patient described as a peculiar sensation in his head. Plantar stimulation at times gave a Babinski response, which was present more frequently on the left side. The ophthalmoscopic examination showed no abnormality, and there were no extra-ocular palsies, no persistent headache and no vomiting. The patient was at no time melancholy or violent, and his fixed delusions persisted until he died. The seizures usually appeared in series and were followed by a slight elevation of temperature; the last series occurred four days before his death; for a few days previous to this his heart action was irregular, his pulse was over 100 and his temperature was subnormal.

Because of the exalted delusions there was at first some thought of the psychosis being dementia paretica; paranoia also was considered. Later, when convulsions developed, it was suspected that the condition had a syphilitic basis; unfortunately the cerebrospinal fluid was not examined nor was a Wassermann test obtained and so no positive mental diagnosis was made.

AUTOPSY REPORT

The general body findings were: heart, chronic interstitial myocarditis; lungs, passive congestion and subacute bronchitis; liver, fatty degeneration, slight perilobular fibrosis and chronic interstitial hepatitis; spleen, chronic interstitial splenitis; kidneys, chronic interstitial and chronic parenchymatous nephritis. These chronic findings were not more than suggestive of syphilis.

Under the calvarium, the dura in the right superior parietal region was adherent to the bone; when separated, the bone was found, roughened and reddish in color. There was no evidence of an old fracture. At this site and even extending somewhat below the right parietal region, the dura was adherent to the pia-arachnoid, and the superficial part of the cortex was stripped off with the membranes. The area of most extensive pachymeningitis was about 2½ inches in diameter and one-third inch thick near the center, becoming thinner gradually toward the periphery. There was very slight thickening of the dura for considerable distance beyond this, but the rest of the membrane was of normal thickness and texture. The surface of the lesion was somewhat irregular though not distinctly nodular; its consistency varied, being considerably firmer in some parts than in others. The pia-arachnoid was somewhat congested. Beneath the area of most extensive pachymeningitis, the convolutions were somewhat flattened. The base of the brain and the vessels were normal. There was slight excess of cerebrospinal fluid, especially in the lumbar region of the cord. The weight of the brain and part of the membranes which happened to be attached was 1,372 gm. (48.4 oz.); this is but little less than the weight of the normal adult male caucasian brain, and about 200 gm. (6.1 oz.) heavier than the average weight of the brain of the colored adult in dementia paretica.

HISTOLOGIC FINDINGS

The dura was thickened to perhaps three times its normal diameter but it was difficult to determine just where the dura stopped and the extra development of fibrous tissue began. Many irregularly rounded holes were seen and these probably had resulted from the hardening of edematous tissue. The development of fibrous tissue was very extensive and many of the fibers were markedly swollen. Throughout, there was a rather free leukocytic infiltration with here and there intense localization. Embryonic cells were abundant and increased vascularization was observed. Some masses of granular detritus were seen here and there, and these were probably disintegrated red blood-cells.

The cellular infiltration consisted for the most part of three varieties of cells and these appeared to be lymphocytes, mast cells and plasma cells. The lymphocytes were greatly in preponderance. In some areas there were many large, round or oval, highly granular cells; their diameters ranged from 10 to 18 microns. They mostly contained relatively large, round or slightly lobulated nuclei which were usually eccentrically placed. When stained with theonin, these cells took on an intense blue color but under artificial light they assumed a deep purple tint, while the lymphocytes remained blue and the red blood-cells showed a greenish tinge. These cells conformed more nearly to the type of the mast cell than any other with which I am familiar. The third variety of cells corresponded to the description usually given of plasma cells; they were much less numerous, usually larger and tended to be more angular than the mast cells and they contained finely granular protoplasm. In most of the sections, particularly those stained with hematoxylin, many endothelial cells were observed; these, perhaps, were due to active proliferation, but at no time were such cells found within the lumen of the vessels; often they appeared to be engaged in the formation of new blood-vessels.

The pia-arachnoid was much thickened and densely adherent to the dura. Within the meshes of the membrane there was a diffuse cellular infiltration; the vessels were increased in number with some perivascular cellular areas.

There was subpial neurogliar proliferation amounting to a dense felting, and this accounted for the superficial layers of the cortex being removed with the membranes. These neurogliar cells were very numerous and of gigantic size with many hair-like processes radiating from them. Almost all stains revealed the presence of these bodies, but they were most intensely stained by Mallory's neurogliar stain and Weigert's myelin sheath stain. The cells nearest the pia were so closely interwoven as scarcely to be recognized, but as they extended farther into the cortex, their outlines and processes became clearly visible. In contrast with the commonly seen stellate glia cells, their sectional area was four or five times as great; they were mostly oval and had many exceedingly long processes; they frequently contained two or more nuclei; they were proliferating most rapidly and were seen in all stages of development.

The cortex immediately beneath the involved meninges showed some perivascular cell infiltration, but this probably had extended from the meninges. A most destructive process had gone on in the superficial cortical area. Some of the pyramidal cells were barely recognizable; many were shriveled up; others appeared as a pale blue area in which nothing definite could be observed except the nuclei; the angles of the cells were almost lost and the tigroid bodies in many places had disappeared entirely; sometimes the nuclei were not apparent, frequently they were vesicular, often they were displaced and occasionally they bulged beyond the cell outline.

The most superficial medullated fibers showed some varicosities and attenuation but elsewhere the fibers were normal. The vessels at the base of the brain were normal.

There is no specific character to a syphilitic psychosis; it may partake of the type of dementia, mania, melancholia or paranoia. Of course the same is true of an alcoholic psychosis, and since this patient drank to some extent, it is possible that alcohol played a part in causing his mental condition; but this certainly did not account for his convulsions. As to the

pachymeningitis which doubtless was the cause of the convulsions: It has been said that syphilis "never attacks exclusively any small area of the brain or cord, it is never strictly local, but always more or less generalized." There was no history of traumatism in this patient nor was there any evidence of an old injury in the bone over the area involved; still, in a syphilitic subject, the possibility of traumatism causing such a condition is pointed out by Mott[1] who has met such cases following "a blow on the head which has set up an inflammation either in the bone or in the dura mater at a definite spot just as a blow on the shin may cause a periosteal node in a person the subject of syphilis."

In this case a clinical diagnosis had not been made and at necropsy the growth was not sufficiently distinctive to reveal its true nature. Microscopic examination of the meninges and brain showed no distinct abnormality except in the areas described; this ruled out dementia paretica; the excessive weight of the brain was likewise against this condition.

The microscopic findings conformed to those found in syphilitic pachymeningitis.

I am indebted to Dr. J. Allen Jackson of the Philadelphia Hospital for the Insane for the opportunity of studying this brain.

2005 Chestnut Street.

ABSTRACT OF DISCUSSION

DR. E. E. SOUTHARD, Cambridge, Mass.: How would you dianose the case under Kraepelin's classification?

DR. N. S. YAWGER, Philadelphia: I would regard it as a paranoid case in which syphilitic perimeningitis played a part.

GLYCOSURIA AMONG THE INSANE

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This investigation into glycosuria of the insane was prompted by my interest in a case of mental aberration marked by melancholia and manifesting sufficient evidence of diabetes to raise the question of dependency of the psychic symptoms on that disease.

While our knowledge of the pathology of diabetes in the nervous system is incomplete it may be well to cite briefly the findings in a general way in order to note the impossibility of establishing a clear relation between glycosuria and mental disease on the basis of anatomic findings.

In the brain a variety of lesions in diverse locations have been associated with glycosuria. Spontaneous lesions as tumors, abscesses, hemorrhages and inflammatory thickenings, especially of the medulla and cerebellum near the place of Claude Bernard's puncture, but also in other parts of the brain, have been noted as causes of glycosuria. Tuberculosis of the hypophysis and the changes resulting in acromegaly are frequently associated with an excretion of sugar. In diabetes we have evidence of disturbed brain action, but we know so little of the cerebral pathology of diabetes and insanity that we cannot correlate these facts satisfactorily.

In the spinal cord, too, certain histologic pictures are undoubtedly dependent on the diabetic process and other lesions which seem to induce glycosuria. In some cases it is difficult to ascertain which is cause and which effect. Thus in diabetes changes occur in the posterior columns similar to those of tabes and there may be symptoms which raise a question of differential diagnosis, especially since it is known that glycosuria is not infrequent in tabes. Spinal cord tumor has been associated with glycosuria and thought to be its cause.

The peripheral nerves are usually the seat of inflammation during the disease, and the neuritic symptoms are common and numerous. Taylor has reported a tumor of the right vagus nerve accompanied by the presence of sugar in the urine. It has been stated in text-books that the cranial nerves are unaffected by the toxins of diabetes, but Merrill[1] has reported a case of nerve deafness due to this. Reference should be made to the theory of Pavy.[2] He has suggested that there is a cerebral influence on the vasomotor supply to the chylopoietic organs; that the nerve filaments from the sympathetic nervous system are connected with areas on the surface of the brain which function as cerebral vasomotor centers. The view which many are inclined to hold at present, that insanity is a functional disturbance of the brain due to toxemia, could fit in well with this theory to explain the frequent association of glycosuria and insanity.

It is the clinical rather than the pathologic findings which have raised the question of the significance of glycosuria in some forms of insanity. The toxins of diabetes undoubtedly have an action on nervous tissue. The neuritis occurring in diabetes manifests itself in numbness, anesthesia, paresthesia, hyperesthesia, cramps in the muscles, neuralgia, especially sciatica, falling nails, glossy fingers, perforating ulcer and gangrene of the toes. Diabetic paraplegia and "diabetic tabes," the complex of steppage gait, girdle sensation, lightning pains and lost reflexes are due to neuritis and cord changes. The loss of vibratory sensation described by Williamson[3] and fibrillary contractions (Pavy[2]) are neuritic. Anginal symptoms have been attributed to pneumogastric neuritis.

The effect of the diabetic toxemia on the cerebral centers is often observed. Mental disturbance of grave import is well known to accompany many cases of the disease. The usual form of aberration is a mild chronic depression with melancholia. Delusions of persecution, sin and ruin are not uncommon. There may be somnolence, confusion, disorientation, dulness of mind, irritability and restlessness. On the other hand, there are many and diverse disturbances of the cerebral function which are associated with a transient or permanent glycosuria. Numerous instances are recorded of the appearance of sugar in the urine following mental shock due to accident, operation, strain of competitive examination, etc. It is common knowledge that diabetes occurs with unusual frequency in families with a neurotic disposition. The frequent occurrence of glycosuria in the insane has been noted by Dawson,[4] Leeper,[5] Halberstadt and Arimoles[6] and others. Melancholia is the type of insanity in which glycosuria is most often found. It is interesting to speculate on the frequency with which a typical melancholic manifests glycosuria and a typical diabetic suffers profound melancholia.

Anatomic diseases of the central nervous system, as acromegaly and focal lesions in various parts of the brain and cord, have been associated with glycosuria.

REPORT OF CASE

Patient.—Mrs. M., housewife, aged 45, married, mother of four children, the youngest 17 years of age, menstruated regu-

1. Mott: A System of Syphilis, iv, 81, Oxford University Press, London, 1910.

1. Merrill: Boston Med. and Surg. Jour., June 15, 1911.
2. Pavy: The Lancet, London, 1906, i, 1229-1406.
3. Williamson. Lancet, London, 1905, i, 855.
4. Dawson: Lancet, London, 1910, i, 1002.
5. Leeper: Jour. Ment. Sc., 1901, ii, 758.
6. Halberstadt and Arimoles: Abst. Jour. Nerv. and Ment. Dis., 1911, xxxviii, 633.

larly, and no abnormalities were found by physical examination. After some family trouble the patient worried unduly and manifested depression. She was beset with fears regarding the safety of her son and daughter. A stay of two weeks in a private sanatorium restored her to her usual frame of mind. After her return she complained that she had been unable to get sufficient water at the retreat and to appease her thirst she had drunk from the bath-tub. Six months later without evident cause there was a second attack of mental disturbance in an aggravated form. She was sleepless, cried and prayed continually, and feared that death was soon to befall her son and daughter. She reproached herself for giving so meagerly to the church and the poor, and was greatly concerned about the restraint applied to some patients in the violent ward. Violence was manifested for a day or so when it was necessary to watch her closely to prevent her from choking or otherwise injuring other patients. A delusion was developed in regard to her relationship to another inmate.

Examination and Treatment.—During this time there was no particular evidence of thirst, but urinary examination disclosed a high percentage of sugar. There were no neuritic or infectious manifestations of the disease. Constipation was marked and obstinate to treatment. When the patient was placed on antidiabetic diet, first soup and then carbohydrate-free, sugar ceased to appear in the urine. She became less melancholic, ceased crying and praying, gave up her delusions and later her fears, so that after a period of three weeks there was no evident mental disturbance. The relatives insisted on a return to her home against advice. A promise to employ a nurse and adhere to strict diabetic management under the guidance of a physician was not fulfilled. In four days she was returned because of depression, sleeplessness and a partial return of delusions. After two weeks delusions were again lacking, but she continued to worry and was in a state of melancholy when she eloped assisted by relatives. After an absence of about a month she was again returned. Her mental condition at that time was practically the same as now though her physical condition is somewhat improved. At present she is very depressed, cries a great deal and is possessed of her delusions though she does not manifest them unless questioned. Sugar appears in the urine occasionally, but is not constant with the general ward diet. None of the urinary examinations disclosed diacetic acid and the ammonia output was not increased.

At present I believe that most psychopathists would pronounce the patient a melancholic. When she was first brought to the hospital the large percentage of glycosuria, high specific gravity and polyuria were certainly suggestive of diabetes. The amelioration under treatment strengthened this belief, but the subsequent return of the mental condition without glycosuria, the absence of symptoms of diabetes and polyuria favor the diagnosis of melancholia with associated sugar excretion. This experience serves to emphasize the close relationship symptomatically between this form of insanity and diabetic psychosis, and illustrates the need of time and repeated urinary examination in the differentiation of the two in certain cases. To determine something of the significance of the sugar reaction in the urine of the insane the records of 650 urinalyses made on admission of patients to the Nebraska Hospital for the Insane have been examined. A total of 4.28 per cent. gave a positive sugar test. The table illustrates the division of these cases among the 650 patients according to the type of insanity together with the percentage of cases showing glycosuria in each variety of mental disease. In involutional melancholia 22 per cent. had glycosuria —a much higher percentage than is found in any other variety. Organic dementia comes next with 12 per cent. This tends to corroborate previous observations that various lesions of the brain are frequently associated with glycosuria. There are more cases of glycosuria among the dementia praecox class than among the manic-depressives in this series.

Quite frequently a patient will pass sugar in his urine during the first few days after admission and not again subsequently. Twenty-four-hour specimens were not always taken in earlier records. The quantity of urine was not increased in four cases of temporary glycosuria which I examined.

TABLE COMPARING RELATIVE FREQUENCY OF GLYCOSURIA IN DIFFERENT TYPES OF INSANITY

Type of Insanity	Number of Cases	Per cent. of Cases	Number with Sugar	Per cent. with Sugar
Dementia praecox	253	38.70+	7	2.66+
Manic-depressive insanity	54	8.26+	9	1.62+
Dementia paralytica	64	9.79+	2	.34+
Involutional melancholia	9	1.36+	2	22.00+
Senile dementia	56	8.56	2	.36+
Not insane	18	2.75	1	5.90+
Organic dementia	8	1.22+	1	12.00+
Epileptic insanity	25	3.82+	1	4.00+
Unclassified	32	4.89+	1	3.1
Intoxication psychoses	60	9.18+	2	3.2
Paranoid states	28	4.28+	..	.....
Defective development	32	4.89+	..	.....
Huntington's chorea	1	.15+	..	.....
Total	650	.....	28	4.28+

The association of permanency of glycosuria with high specific gravity was noted in thirty-two patients. A high percentage of cases with glycosuria among these insane had a low specific gravity. Those with permanent glycosuria for the most part had a specific gravity above 1.030. Occasionally a transient glycosuric urine had a high specific gravity.

An examination of epileptics with reference to glycosuria has not been completed. I may mention that of six taken indiscriminately in which daily urine examination was made for twenty days, five showed a sugar reaction one or more times. In none of these did it occur persistently.

A brief epitome of facts gleaned in this study may be of service. The sugar reaction is frequently obtained in the urine of the insane, especially of melancholics and those with organic brain lesions. The condition is usually a temporary one occurring at more or less frequent intervals or only during the first few days after admission. The case reported illustrates the need of repeated tests to exclude the presence of a diabetic process. The permanency of the glycosuria, specific gravity, polyuria, thirst, neuritides and ammonia output should be considered in differential diagnosis. If the sugar is abundant and present over a considerable period of time antidiabetic management should be instituted. The importance of the sugar test must not be underestimated in view of the resemblance symptomatically of the diabetic psychosis and melancholia.

The discussion of the cause of the frequent appearance of sugar in the urine of the insane can be but speculation. Certain factors of instigation are recognized. The mental agitation and distress experienced by many who have insight into their condition explains the occurrence of glycosuria on admission. The gluttony especially common among epileptics is responsible in all probability for frequent temporary appearance of sugar.

Having Fun with Yourself.—To be able to laugh when the joke is "on you" is to possess a healthy human quality. The man who has this gift will not see himself as playing too large a part in the world's affairs. He is likely to save his self-esteem many buffets and to go about his work a more contented, if a less exalted, being.—*Collier's.*

TWO CASES OF ACUTE PRIMARY CHOLECYSTITIS PRESENTING UNUSUAL FEATURES

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The unusual clinical picture of the following two cases of gall-bladder disease prompts me to report them as examples of acute primary cholecystitis.

CASE 1.—*History.*—The patient, a large heavily built Italian of intemperate habits, aged 47, was suddenly seized at 3 p. m., Dec. 21, 1911, while attending to business, with excruciatingly severe cramping pain in the upper abdomen. He was prostated with it and was soon bathed in cold perspiration. There was no chill or subsequent fever. My father attended the patient at his home shortly afterward, where this condition was noted. Morphin sulphate, one-fourth grain, and atropin sulphate, 1/150 grain, were given hypodermatically. At 9 p. m. the pain was still present in paroxysms and the morphin and atropin were repeated. At this time some delirium was noticed. At 6 a. m. the following morning the patient was still thrashing about the bed in pain and more marked delirium. The morphin and atropin were again repeated, making three-fourths grain of morphin sulphate that was given in fourteen hours. At 11 a. m. I examined the patient, who was lying on his back in semicoma, from which he could with difficulty be aroused. His pupils were small but reacted to light. Breathing was stertorous and the breath was not particularly foul. Deep reflexes were present and not exaggerated. There were no local physical findings. The urine showed no change. The patient sank rapidly into deep coma and died at 1 p. m., twenty-two hours from the time of onset.

The patient's previous history, obtained from his wife, was to the effect that he had suffered a few attacks of pain in the upper abdomen during the previous seven years. There was no history of typhoid. The case had been considered one of gall-stone colic, until the approaching coma pointed to morphin poisoning, although it was not the clinical picture of such.

Necropsy.—This revealed an enlarged, tightly engorged, blackish gall-bladder, projecting free from the under surface of the liver, without the presence of local peritonitis. On firm pressure the contents of the gall-bladder could be slowly expressed into the intestine. When the gall-bladder was opened, a thick black bile escaped, carrying with it six small stones. In four places the wall appeared ready to break through, but nowhere had a gross perforation taken place. The remainder of the body, except the brain, which was not examined, showed no gross lesions. No cultures were taken.

CASE 2.—*History.*—Mr. G., a large muscular man, aged 54, had suffered off and on for about two years with periods of irregular stomach distress: attacks of pain, rather frequent vomiting and on several occasions the vomiting of considerable quantities of blood. The patient was imbued with that peculiar spirit of Scotch stoicism which prevented him from speaking of his own ailments, and in consequence but little information could be obtained from his family or friends. He had been a hard, steady drinker for many years. He was subject to small attacks of fever and headache; but gave no history of having had typhoid.

Examination.—Dr. A. D. Walker saw the patient first on Friday, March 2, 1912, at his home in the country. He was then in bed with a fever of 101 F. and was mildly delirious, but could be aroused easily. He was seemingly in some pain. There were no local physical findings of gall-bladder disease; the abdomen, however, was somewhat diffusely tender to pressure, especially along the line of the colon. On Sunday evening the patient became maniacal and it required several men to hold him in bed. Dr. Walker saw him on Monday morning in a state of collapse, quite unconscious, at times mildly maniacal, and with a little fever. From Friday until he became unconscious on Sunday he had not complained of great pain. Monday evening I examined him with Dr. Walker at St. Vincent's Hospital. He was unconscious but still restless. His pupils were of moderate size and reacted to light. The deep reflexes were present but sluggish. The skin was pale and bathed in cold perspiration. There was no jaundice. I thought, however, that a definite degree of rigidity existed over the gall-bladder region.

This fact, together with the rapidly progressing toxemia and coma, the previous history of attacks of abdominal pain and the experience gained from my previous case, which resembled this one in many respects, made me urge the possibility of an acute gangrenous cholecystitis and advise immediate exploration of the upper abdomen. Dr. Walker called in consultation a surgical confrère who could not see a surgical aspect to the case. Death occurred early Tuesday morning, accompanied by a diffuse edema of the lungs.

Necropsy.—This was performed four hours after death and disclosed an enlarged, engorged, black gall-bladder filled with black, moderately thick bile without any stones. The bile by considerable pressure could be slowly expressed into the intestine. The wall was irregularly mottled with gangrenous areas, but there was no gross perforation and no definite peritonitis about the bladder. The peritoneal cavity was quite intact. The stomach mucosa was dull gray, covered with abundant thick mucus, and possessed several areas of old and recent blood-extravasations. The lungs on the cut surface were wet with frothy fluid and had no areas of consolidation in them.

Cultures made on plain agar slants from the contents of the gall-bladder by Dr. Ben Wade remained sterile.

In a fairly extended search through the literature no instances of acute gangrenous cholecystitis in which local symptoms were masked by an active delirium and coma were found. Mellerio[1] reports four cases of acute infectious cholecystitis without stones from the private clinic of Jordan of Heidelburg, in one of which an active delirium occurred later in its course. There were present, however, severe sudden pains in the right upper abdomen, early chills and jaundice.

The bacterial cause of the acute inflammation in the absence of stones has been undiscovered in the majority of instances. Adolf,[2] at the Frankfort clinic, reports a case in which the colon bacillus was found in the discharge from the gall-bladder. The colon bacillus and the *Staphylococcus aureus* were recovered from the contents of the gall-bladder of the fourth patient of Mellerio. Riedel[3] found streptococci in the bile from the gall-bladder from one patient. Six other patients had sterile bile in the presence of acute gangrene. Ross[4] reports five cases of acute gangrene of the gall-bladder without determining a specific infection in any of them. Keyenburg[5] reports three cases of his own of acute cholecystitis without stone and five more from the literature in which the infection is not stated to have been determined. Schwarz[6] failed to discover the infection in one case.

It is quite evident that the clinical picture of both of my cases was dominated by the intense general toxemia arising from the gall-bladder. What determined this intoxication or the type of infection producing it remained hidden. There was nothing new determined in regard to the pathology of the disease. The entire absence of secondary peritonitis, however, was noteworthy.

In the first case the presence of an old cholecystitis was evidenced by the few stones found in the bladder. Whether these in themselves exerted any influence in the production of the severe pain is problematical because the cystic and common ducts were patent to sufficient pressure and did not contain any stones.

1. Mellerio, Alfred: Diss. Heidelburg, 1909.
2. Adolf: Cited by Mellerio, Footnote 1.
3. Riedel. Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1908, xix, 1.
4. Ross, James F. W.: Canad. Prac. and Rev., 1907, xxii, 720.
5. Keyenburg, Wilhelm: Diss. Bonn, 1909.
6. Schwarz, Wilhelm: Münch. med. Wchnschr., 1908, lv, 2766.

It seems to me that the acute disease of the gall-bladder in the second patient need not necessarily be looked on as secondary to a preexisting chronic cholecystitis, for the reason that there were no stones present and that the severe hemorrhagic gastritis was quite capable of explaining the patient's ill health during the preceding two years. I am quite aware, too, that repeated stomach bleedings do occur because of the probable action of toxins, arising in an infected gall-bladder, on the mucous membrane; but in this instance, a true chronic gastritis existed and also the etiologic factor of chronic alcoholism. It may be possible that the influence of the latter factor, namely, chronic alcoholism, in both cases, determined in a measure the susceptibility of the patient to absorb the toxins formed.

There is present a certain similarity between this type of case and an acutely fulminating infection in any part of the abdominal cavity. The extreme collapse and early delirium is at times seen in appendiceal disease or in acute pancreatitis. It would seem from these cases that the oncoming of an early delirium in association with any acute abdominal condition should be picked out as a tangible and important indication for immediate exploration, whether localizing signs were present or not, for surely the body which shows itself so susceptible to intoxication will not respond to means of elimination until after the focus of infection is removed.

UNILATERAL OPTIC ATROPHY AND CONTRALATERAL HEMIPLEGIA CONSEQUENT ON OCCLUSION OF THE CEREBRAL VESSELS

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Occlusion of one middle cerebral artery producing hemiplegia on the opposite side of the body is an everyday occurrence; furthermore, optic atrophy as a result of obliteration of the retinal vessels on the same side is well known, but the combination of unilateral optic atrophy and contralateral hemiplegia is seldom encountered and might be very confusing.

Cases of this kind have been described by Elschnig,[1] Gowers,[2] Hughlings Jackson,[3] Siegrist,[4] Williamson,[5] Batten and Guthrie,[6] Guthrie and Mayou,[7] Oppenheim,[8] von Monokow[9] and Starr.[10] With the exception of a brief reference in Starr's text-book, I have not been able to find any description of this symptom-complex in American literature; therefore it seemed important to record the following cases.

The first case was seen in the service of Dr. John K. Mitchell at the Orthopedic Hospital and Infirmary for Nervous Diseases, and the second at the University Hospital in the service of Dr. Charles K. Mills. To them I wish to express my thanks for permission to make this report.

1. Elschnig: Arch. f. Augenheilk., 1892, xxiv, 65, Case 2.
2. Gowers: Lancet, London, 1875, ii, 794.
3. Jackson, Hughlings: Ophth. Hosp. Rep., London, 1864, i, 360.
4. Siegrist: 27 Versamml. Ophthalmologisches Gesellschaft, Heidelburg, 1898, p. 10.
5. Williamson, R. T.: Brit. Med. Jour., 1898, i, 1515.
6. Batten and Guthrie: Tr. Clin. Soc. Lond., 1903, xxxvi, 52.
7. Guthrie and Mayou: Proc. Roy. Soc. Med., 1907-1908, i, 180.
8. Oppenheim: Lehrbuch der Nervenkrankheiten, 1908, ii, 939.
9. Von Monokow: Gehirnpathologie, Wien, 1897, p. 838.
10. Starr: Diseases of the Nervous System, 1910, p. 500.

Case 1.—*History.*—M. M., a man aged 35, was admitted to the Orthopedic Hospital and Infirmary for Nervous Diseases, in the service of Dr. J. K. Mitchell, Jan. 8, 1911. Syphilis and alcohol were denied. About six weeks previous to admission the patient had had an acute illness, said to have been influenza. During that time, while confined to bed, he suddenly developed a partial loss of consciousness, lasting a few minutes, with weakness of the right side of the body, including the face, arm and leg; there was also dimness of vision in the left eye and aphasia. Previous to this attack the vision had been normal.

Examination.—There was nearly complete motor aphasia, but no evidence of sensory aphasia, marked weakness of the right side of the face, cerebral in type, with spastic paralysis of the right arm and leg. The tendon reflexes were increased and there was ankle-clonus and Babinski sign. Vision of the right eye was normal, but the left eye was totally blind. Sensation was impaired for touch throughout the paralyzed side of the body. The other cranial nerves were normal. The heart was normal in size and regular; the sounds though fairly good were lacking in muscular tone. Dr. Langdon, who repeatedly made examinations of the eyes, reported that the right eye, except for slight grayness of the disk, was normal. This was not the grayness of true atrophy. In the left eye the arteries were cut down to mere threads; indeed, the inferior temporal branch appeared like a fibrous cord. This, with the macular changes, can readily be caused by occlusion of the central artery. The Wassermann reaction was negative.

Except for blindness and optic atrophy on the same side as the vascular lesion, this case differs in no way from the most commonplace embolic apoplexy with resulting hemiplegia. The character of the onset and course of the apoplectic attack itself, as well as the character of the paralysis, were not unusual; the patient, however, immediately after having recovered from the shock of the initial apoplexy complained of dimness of vision on one side, which rapidly progressed to total blindness. At first an explanation was difficult, but an ophthalmoscopic examination revealed optic atrophy, with the characteristic empty, thread-like appearance of the retinal vessels.

The cases of Batten and Guthrie,[6] of Jackson[3] and of Gowers,[2] which were studied at necropsy, have proved that an embolic mass can be carried through the internal carotid artery into the middle cerebral vessel, producing apoplexy and hemiplegia; at the same time a portion can be swept into the ophthalmic artery, as it branches from the internal carotid, or it may even be lodged in the central artery of the retina, and thus produce sudden blindness and atrophy.

In most instances blindness develops suddenly, though in one of the cases described by Batten and Guthrie optic atrophy was probably not completed for nearly three months after the initial apoplexy; a portion of the occluding mass in the internal carotid vessel may have been subsequently swept into the right ophthalmic artery. Singer[11] found, while producing embolic apoplexy experimentally on guinea-pigs, that occlusion of one retinal artery and subsequent optic atrophy almost invariably occurred. Undoubtedly there must be some peculiar arrangement of the central vessels in guinea-pigs, explaining the frequency of this occurrence.

It is not difficult to understand how optic atrophy and hemiplegia can be produced, if we remember the manner in which the terminal branches of the internal carotid vessels are distributed. It divides into the middle cerebral, which supplies the basal ganglia, internal capsule, etc.; close to the point where the middle cerebral is given off the ophthalmic is derived, which divides

11. Singer: Ztschr. f. Heilk., 1897, xviii, 105.

into two main groups, the orbital and ocular groups. The second group consists of the muscular, anterior ciliary, long and short ciliary and the central artery of the retina, the latter perhaps the smallest of all and possibly more easily occluded than the other branches.

Naturally, the position of the occlusion in the ophthalmic artery or in one of its branches has an important bearing on the resulting signs. Unilaterality of visual disturbances is in itself an important indication of a localized vascular lesion. In syphilis bilateral and symmetrical involvement would generally occur, or, at least, if one eye was affected, the other would show some evidence of disease even though relatively insignificant. Williamson has described unilateral retinal changes occurring with cerebral hemorrhage, embolism and thrombosis, in thirteen cases. In eleven the diagnosis was verified by post-mortem examination, and in two the diagnosis seemed correct clinically. In four cases of hemorrhage and one of embolism a large retinal hemorrhage occurred on the same side as the cerebral lesion, while the retina of the other eye was practically normal. In one case the retinal vessels were markedly dilated and tortuous on the side of the lesion.

Oppenheim,[8] in his text-book, speaks of an instance in which there was unilateral optic atrophy with contralateral hemiplegia, accompanied by considerable headache and tenderness on the side of the atrophy. He believed that it was caused by a tumor, but the necropsy revealed cerebral softening. Indeed, tumor might easily be confused, particularly when it is situated in or near the frontal lobe, as in the cases described by Gowers, Horsley and Kennedy.

For diagnostic purposes the appearance of optic atrophy when caused by vascular occlusion is more or less significant. Herbert Parsons[12] says:

> A large mass of evidence has already accumulated to show that of all parts of the ocular circulation the part in the immediate vicinity of the lamina cribrosa is the most liable to be affected by vascular disease in any form. This undoubtedly is true in regard to obstruction of the central artery whether it be due to embolus, endarteritis or endarteritis combined with thrombosis.

Parsons divides the appearance of the various stages of atrophy as follows: at first, the arteries are thread-like from more or less sudden cutting off of the blood-stream; later, there is some refilling from the establishment of a collateral circulation, and finally, the arteries are thread-like and sclerosed, associated with optic atrophy.

Unilateral optic atrophy may occur as the result of localized endarteritis or a combination of arteritis with thrombosis, without hemiplegia; but apoplexy and hemiplegia can develop subsequently, and then examination will show unilateral optic atrophy with contralateral hemiplegia; nevertheless an accurate history of the time of onset of blindness and a careful ophthalmoscopic examination should make the diagnosis possible. This condition is well illustrated by the following case:

CASE 2.—*History.*—P. R., a man aged 52, was admitted to the University Hospital, in the service of Dr. Mills, Nov. 15, 1911. Family history was negative. Patient denied syphilitic infection and alcohol. During 1909 and 1910 he had complained of dimness of vision on the left side. In February, 1910, he had a series of general convulsions. Three days later he suddenly lost consciousness. After regaining consciousness he was unable to speak and was paralyzed on the right side of the body.

Examination.—There was typical right hemiplegia with spasticity, increased tendon reflexes, ankle-clonus and Babinski sign and nearly complete motor aphasia. Sensation was not affected. On the left side there was complete blindness. Ophthalmoscopic examination showed optic atrophy with great diminution in the size of the retinal vessels, which were sclerotic. The retinal vessels of the right eye were moderately sclerotic, but vision was not much impaired.

1710 Locust Street.

12. Parsons, Herbert: The Pathology of the Eye, pp. 1262-1265.

CERTAIN PHYSICAL SIGNS IN SCOLIOSIS OF LESSER DEGREE

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By scoliosis we mean a deformity characterized by lateral deviation of the spinal column, associated with a rotation of the bodies of the vertebrae around a vertical axis. In this position of rotation the bodies face toward the resulting convexity, while the spines of the vertebrae point in the opposite direction; a slight deviation of the spines does not always indicate an equally slight degree of aberration of the vertebral bodies.

Further, as a result of the rotation, the transverse processes on the side of the convexity are directed backward, and carry with them, in the dorsal region, the ribs, whose angles become more or less prominent according to the degree of deformity.

In scoliosis of slight degree the angulation itself may not be marked; instead, a costal bulging or boss is formed, which becomes more noticeable when compared with the flattened area of the opposite side of the chest. Also, on the side of the spinal convexity the scapula is pushed away from the spinal column and the shoulder raised, while on the concave side the shoulder drops and the scapula approaches the vertebral column.

Often the deformity is so slight as to be overlooked, particularly when the patient attempts to sit erect; hence, it is of much importance, in beginning the inspection of a patient, to permit him to sit at ease, or, even to slouch, if he will.

For our purpose it is necessary to consider the matter of compensation in scoliosis; in moderate cases, even, of scoliosis, a compensatory convexity is produced in the vertebral column. In the thoracic bony structure, also, compensation occurs, as follows:

Diagonally across the chest from the posterior costal angulation or bulging above mentioned, is found a second, less emphasized angulation or bulging, while a flattened area is observed on the opposite side of the chest anteriorly; i. e., on the same side of the chest as the posterior bulging alluded to. For example, given a dextroconvex scoliosis in the upper dorsal region, the greatest angulation or bulging of the thoracic wall will be to the right of the vertebral convexity, while the compensatory angulation will be found to the left of the sternum just below the clavicle. The flattened areas will lie to the left, behind, and to the right in front. Again examining the back, we should logically expect to find further increased angulation of the ribs on the side of the lower vertebral convexity (the left side); this is the case, in lesser degree, however, inasmuch as the floating ribs, not being anchored, are not so much angulated by the rotation of the vertebrae.

In order to detect these slight lateral deviations, the patient should sit in a good light and assume the position most comfortable for him, however stooped and

slouchy it may be. The admonition of the physician to sit erect tends to defeat the end aimed at. It may be necessary to allow the patient to sit quietly for some time before he relaxes sufficiently to show the deformity.

It must be remembered that patients may sometimes confuse percussion findings by muscle play; this point is especially of importance when the deformity is slight and physical signs not pronounced.

Note is now made of the relative height of the shoulders, of the position of the scapulae and their distance from the spinal column at their inferior angles; this difference may range from 1 cm. to 5 cm. The presence of a one-sided supraclavicular fossa should receive consideration, while, in women, the difference in the position of the breasts should attract attention.

As the patient continues to relax, the head is often tilted to one side — this in furtherance of compensation. As the physician stands behind the patient and looks downward on the latter, the increased prominence of the one side in front is readily seen, unless the deformity be slight.

In intensity the high-pitched areas rank as follows:

First, posteriorly, opposite superior vertebral convexity.

Second, anteriorly, over the infraclavicular region.

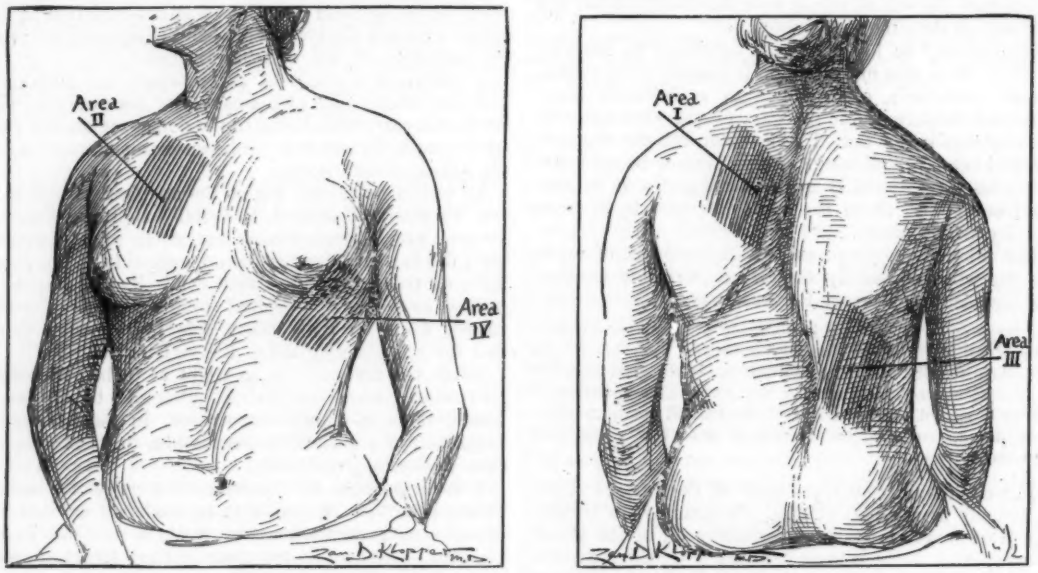
Third, posteriorly, below, opposite lower vertebral convexity.

Fourth (when present), anteriorly, below, diagonally across from superior infraclavicular area.

To exemplify the problem in sound-production here adduced, I have prepared two bars of iron, both of the same length. The straight bar we may use to represent the flattened and resonant areas, while the bent bar may be taken for the angulation areas. Percussion produces a resonant note in the straight bar and a short, high-pitched tone in the arch.

Sahli says:

Increased convexities of the thorax produce dulness which can be best noted in scoliotics and kyphotics. This dulness occurs because of the increased rigidity of the more convex rib which vibrates less and allows percussion force to be lost. A flattened rib permits of increased vibration under percussion; hence, a somewhat hyperresonant note over the flattened tract.



Areas of high-pitched percussion notes in dextroconvex scoliosis.

Passing now to percussion we find the distinctive changes in physical signs which especially characterize the scoliotic chest, provided, however, that there is no disease of the lungs which has affected their integrity.

Let us percuss first the upper portion of the chest, behind, on the side of the vertebral convexity; we elicit a shorter and higher-pitched note than on the opposite or flattened side; that is, on the side of the spinal concavity, where we often find marked resonance.

Percussing the lower part of the chest, now, we elicit another high-pitched note over the area on the side of the lower vertebral convexity; on the side of the lower vertebral concavity we find another area of resonance.

Anteriorly we percuss the area of compensatory angulation and again obtain a short, high-pitched note as compared with the sound elicited from the flattened chest wall on the opposite side. A fourth, more or less inconstant, high-pitched area is found diagonally across the front of the chest from the infraclavicular area just mentioned.

Bachmann (1899), Bouvier, West, Mosse, Kaminer and Zade, as well as other authors, have called attention to the phenomena under discussion, but the subject has been most thoroughly treated and formulated by Neumann.[1]

Given a case of slight scoliosis minus actual lung disease, the high-pitched areas here described are quite constant. Where, however, thickening of the pleura has occurred, the percussion note may be found over other areas than those presented in our scheme. Differentiation between the signs accompanying empyema or effusion and the schematic signs found in scoliosis should present no difficulties.

Early tuberculous consolidation usually presents an area of dulness in front as well as behind on the same

1. Neumann, Wilhelm: Beitr. z. Klin. d. Tuberk., xviii, No. 3.

side; this is not true of the scoliotic phenomena. Further, in advanced tuberculosis, even when, as often, it is accompanied by marked scoliosis, the areas of high pitch are practically never schematically demonstrable. The upper areas of high pitch in scoliosis may be, and often are, mistaken for apical tuberculous catarrh; but, in the absence of corroborative physical evidence, front and back, on the same side, such a diagnosis is, at least, doubtful — especially in the absence of other data.

Neumann has called attention to the limited downward excursion of the lung on the side opposite the upper vertebral convexity. Not only is the motion usually limited, but also, in some cases, as I have observed, it is entirely eliminated.

Diagnostic error in early tuberculosis is often on the side of omission; unless we remember that other conditions may influence variations in pitch, the error may be readily transformed into one of commission. Although this error is not fraught with such fatal results as the former, it is capable of producing much distress to those involved.

Two cases which have come to me within the last year demonstrate this point. One, in a lad of 15, was diagnosed as incipient tuberculosis, and change of climate was advised. Examination showed a mitral regurgitation, marked scoliosis, schematic, high-pitched areas; no fever, no tubercle bacilli and no albumin in sputum and no reaction to 5 mg. T. O. The patient has done well since, without treatment. He consulted his physician on account of a "cold."

The second patient, a woman, 40 years of age, came with a diagnosis of moderately advanced tuberculosis; she had no fever, absolutely no sputum, a pulse 68 to 72, no lung signs; she had marked scoliosis with easily demonstrable areas of high pitch. T. O., in doses of 5 and 10 mg. respectively, failed to produce reaction, either general or local.

I have found these high-pitch areas in many other scoliotics who have presented no other discoverable signs which might be considered as being indicative of tuberculosis — and who are, clinically, well. These percussion changes in scoliosis should be borne in mind when tuberculosis is merely suspected but demonstration by classical signs is not possible; they should not be held to be conclusive, nor should their presence militate in any way against a careful search for other pathologic phenomena.

2744 Pine Grove Avenue.

PLEA FOR EARLY SURGICAL INTERVENTION IN ALL UMBILICAL HERNIAS *

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Some time ago I read a paper entitled "Urgent Conditions in Abdominal Surgery," in which I strongly advised closure of all umbilical hernias before any strangulation takes place. For the past six months I have been asked so often to operate for strangulated umbilical hernia that I again call attention to this urgent condition.

Umbilical hernia is a common condition. In many particulars this hernia is unfavorable for a prolonged operation, and therefore I make a plea for more prophylactic surgery. The patient is as a rule aged between 45 and 60 years, and is a fleshy person with poor resisting powers. The pathology of the umbilical hernia much complicates the condition. That typically honeycombed dissection of the viscera between the fascia and the skin, which is so characteristic of umbilical hernia, makes the operation long and tedious. In this class of cases the strangulation is often incipient in onset; therefore the patient is profoundly or fatally toxic ere any marked symptoms of strangulation reveal themselves.

On account of the gradual onset, extensive involvement of the viscera has taken place before recognition of a serious condition, necessitating major resection or prolonged surgery. Rarely do I see a patient before fecal vomiting has taken place, and at this stage it is too late to save many of these patients. A partial strangulation of the bowel, which may have taken place for weeks, is the probable cause of the fatal toxemia. Absorption of toxins has been taking place from the mucous membrane of the partially obstructed bowel, and the bowel early becomes infected throughout its structure.

The surgical difficulties encountered are ominous. The strangulated structures have been external so long to the true abdominal cavity and have become hypertrophied to such an extent that it is impossible to return the viscera without unduly increasing abdominal tension and thus profoundly or fatally shocking the patient. Again, the viscera have been external so long that when returned to the abdominal cavity they act as a foreign body with a resultant fatality. I have seen the mesentery of the small bowel so elongated from its false position that the intestine could be drawn over a foot above the abdominal incision. The mesentery to the particular loop of bowel which has been external to the abdominal cavity is often so definitely elongated that I call it "a peninsular of the mesentery." This will require extensive resection of the mesentery and bowel if an attempt is made to close the hernia.

If operation is delayed in this class of hernia until operation becomes a necessity, only a small percentage of patients can be saved. In these mammoth hernias the mortality is high even when there is slight or no strangulation. I am positive that the mortality in abdominal surgery is too high all over the world when compared with our real surgical privileges in this age, and that it is our own professional fault. Our mortality in abdominal surgery should not be over 1 per cent.

I cannot agree with the physician who, after giving advice for surgical intervention in some particular condition, continues to treat that patient along medical lines with the idea that he has unburdened his conscience by simply advising surgical intervention. If he continues to treat the patient along lines which he does not approve, he is an accomplice in a professional crime. His attentions should end when his advice is not taken. If we all did this, it is easy to see how much earlier we would meet these fatal conditions. Indeed, if you have washed your hands and properly tied the vessels with reliable materials and review your list of deaths, the simple phrase "too late" should span the mortality.

It is always with the greatest professional apprehension that I think of the untimely death of Joseph Price, that greatest advocate for early surgical intervention. The present physiologic era in abdominal surgery will bury many patients without even a chance of surgical privileges. I grow bitter under it. It does not make much difference what the surgical line of treatment is in these large, strangulated hernias. The bowel may be resected, the gangrenous portions short-circuited, the

* From the Clinic of the Joseph Price Hospital.

bowel opened and drained without resection, and the abdominal cavity drained or closed, yet the mortality is appalling. The treatment must practically be prophylactic. By this I mean that it must be given not only before there is any strangulation of viscera, but before the hernia becomes of extensive proportions.

241 North Eighteenth Street.

A REPORT OF SOME NEW CHEMICAL ANALYSES OF URINARY CALCULI

WITH INDICATIONS FOR TREATMENT *

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AND
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We present in this paper quantitative chemical analyses of twenty-five renal calculi and of two cystic calculi, showing that the true renal calculi were composed almost entirely of calcium salts, while the cystic calculi were composed almost entirely of uric acid. Our series of calculi were all obtained from patients who lived in this country and our results can be compared with those obtained by several workers in England who obtained results similar to our own.

Rowlands[1] in his investigations of twenty-two stones came to the following conclusions: that renal calculi were composed almost entirely of calcium oxalate; that uric acid is usually absent, and if present it is so only in very small traces; that phosphates are commonly present. Mackarell, Moore and Thomas,[2] in a series of twenty-four analyses, corroborated the results of Rowlands.

We have analyzed quantitatively sixteen calculi from patients of various hospitals of New York City. Table 1 gives a report of the percentage composition of the various components of the stones of this series.[3]

TABLE 1.—PERCENTAGE COMPOSITION OF SIXTEEN RENAL CALCULI

No.	Weight, gm.	Moisture, Per Cent.	Calcium Oxalate, Per Cent.	Uric Acid, Per Cent.	Phosphorus Pentoxid, Per Cent.
1	12.0446	6.11	37.4	3.59	51.59
2	0.5114	4.1	94.7	2.1	5.3
3	13.982	2.1	29.5	7.46	56.2
4	0.6009	1.08	63.4	7.3	7.3
5	14.998	0.23	94.1	0.2	6.1
6	2.4505	3.2	72.3	23.6	4.3
7	6.175	1.3	90.5	9.01	0.5
8	4.0349	0.04	98.7	1.01	6.4
9	5.7725	0.02	94.2	1.8	4.6
10	2.8904	0.15	81.6	9.3	9.5
11	15.9125	0.4	73.8	7.5	20.1
12	0.9329	0.43	80.4	10.3	6.5
13	0.1612	0.05	91.3	2.46	5.23
14	1.6064	0.099	70.2	12.1	16.9
15	12.3478	0.3	90.37	3.4	6.21
16	9.7621	3.1	91.3	7.2	2.1

The following conclusions may be drawn from these analyses: 1. The large majority of renal stones are composed of oxalate of lime. 2. Uric acid and the urates are found in all renal concretions, but it is rare to find a renal calculus that is mainly composed of the urates. 3. The shape, color, consistency, etc., of a stone do not form a criterion of its chemical composition.

* From the Chemical Laboratories of the Beth Israel and German Hospitals, New York City.

1. Rowlands: Biochem. Jour., 1908, iii, 346.
2. Mackarell, Moore and Thomas: Biochem. Jour., 1911, v, 161.
3. These analyses were conducted in the Biological Chemistry Laboratory, at the College of Physicians and Surgeons, Columbia University, New York City, by Dr. Kahn, at the suggestion and under the direction of Dr. Rosenbloom.

Recently a series of eleven stones was analyzed by one of us.[4] Very nearly corresponding results were obtained. Nine of the stones were renal and two of them were cystic. The following table records the amounts of the various constituents found:

TABLE 2.—PERCENTAGE COMPOSITION OF NINE RENAL CALCULI

Received From	No.	Moisture, Per Cent.	Calcium Oxalate, Per Cent.	Uric Acid, Per Cent.	Calcium Phosphate, Per Cent.
Dr. MacCallum, New York.	17	3.0	68.1	9.11	1.5
Dr. MacCallum, New York.	18	4.1	21.5	6.3	70.8
Dr. H. Fischer, New York..	19	2.1	81.1	1.9	11.6
Dr. Rosenbloom, New York.	20	4.3	43.2	0.6	45.4
Dr. Kammerer, New York..	21	4.0	30.1	0.0	64.2
Dr. Rosenbloom, Pittsburgh	22	10.3	30.5	0.0.	50.6
Dr. Rosenbloom, Pittsburgh	23	8.2	0.0	0.0	0.0
Dr. Sembken, New York...	24	3.1	90.2	1.8	4.3
Dr. Rehling, New York....	25	5.2	70.8	1.2	20.1

Nitrogenous substances were present in stones 16, 17 and 18; a total nitrogen determination of these stones gave 1.3 per cent., 4.6 per cent. and 3.3 per cent. respectively. Nevertheless, by the method used for the direct uric acid determination, negative results for urates were obtained.

TABLE 3.—PERCENTAGE COMPOSITION OF TWO CYSTIC CALCULI

Received From	No.	Moisture, Per Cent.	Calcium Oxalate, Per Cent.	Uric Acid, Per Cent.	Phosphorus Pentoxid, Per Cent.
Dr. MacCallum	26	7.1	0.0	96.3	0.0
Dr. H. Fischer.....	27	6.2	trace	98.0	0.0

We have also examined three gouty tophi and in none of them could we find any uric acid. This would tend to show some relation in the metabolic disturbances of gout and renal lithiasis. Certain principles for the treatment of both of these conditions will now be considered.

SUGGESTIONS FOR THE TREATMENT OF RENAL LITHIASIS

It is quite conventional to recommend alkaline solutions to patients afflicted with stone disease. The salts of lithium have enjoyed a great reputation for their supposed wonderful solvent action on renal concretions. Whyte and Deften considered alkaline solutions as true solvents for renal calculi. Hoffman, Springsfield, Alston, Leger and others recommended alkaline treatment for nephrolithiasis. Morgagni suffered from gravel, and his remedy was half a dram of the potassium carbonate during the day. "The acid of his urine soon became saturated, the pains in his loins diminished, his urine became less loaded and potash was at length found in that fluid in excess." From Pepys' diary we extract the following procedure for the treatment of stones: "And at this season of the year we go to Tunbridge Wells to drink the waters and to get rid of our gravel, to which end we are aided by taking small doses of turpentine." Nowadays it is quite the custom for those who can afford it to go to various bathing and water-drinking resorts, where they ingest alkaline water for the treatment of gout and gravel. We believe it quite absurd to imagine that the amount of alkaline metal that is excreted by the kidneys in the urine is of sufficient concentration to cause any but a theoretical solution of the stony concretion.

The fact that, as has been shown, the majority of renal calculi are composed of insoluble salts of calcium and

4. These analyses were carried out by Dr. Rosenbloom at the Chemical Laboratory of the German Hospital.

not of uric acid or urates, forcibly brings to our attention the necessity of changing our therapeutic ends in regard to the treatment of renal calculi. The therapeutic measures for the treatment of insoluble calcium salt concretions are completely different from those employed for uric acid. The usual antacid treatment is just the opposite of what is indicated, because while uric acid and its acid salts are soluble in alkaline mediums and insoluble in acid, the exact opposite holds for calcium oxalate and calcium phosphate, which are deposited in alkali mediums and dissolved by acids.

We therefore conclude that all calculi obtained by operation or otherwise should be subjected to chemical analysis and that if they are found to be composed of calcium salts, no antacid treatment should be advised, as this would lead to a more rapid growth or to increased chance of growth and instead of the non-acid treatment, it would be most advisable to try a course of acid treatment.

COCCIDIOIDAL GRANULOMA

REPORT OF THE NINETEENTH CASE IN CALIFORNIA

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Up to this time eighteen cases of coccidioidal granuloma have been reported and traced to California, the seventeenth and eighteenth being reported by Brown[1] of San Francisco, with review of the literature. The first case in California was discovered by Rixford[2] of San Francisco, and later described in conjunction with Gilchrist[3] of the Johns Hopkins Hospital Medical School. Afterward Ophüls[4] of San Francisco described the fungus with certain morphology and characteristics, giving the name of *Oidium coccidioides*, with report of thirteen cases, differentiating the fungus from the closely related *Blastomyces coccidioides* of which much has been written, the latest article being by Hektoen[5] of Chicago.

The mold appears to be of animal origin, though not proved, with occasional infection in man. Most infected persons came from the lower half of the San Joaquin valley, and were men employed in railway construction or in caring for animals. The duration of the disease, so far reported, is from six months to nine years. Most of the patients gave histories of bone lesions, some having accompanying lesions like hypertrophic lupus. Others gave histories of tumors of the skin followed by ulceration without tendency to heal. Early involvement of the lymph-nodes is frequently seen terminating not unlike tuberculosis.

The mode of infection, whether external or internal, has not been determined, but in the forms that produce a skin infection as the first symptom, the skin can in all probability be determined as the primary focus. In internal cases infection is most frequently seen in the lungs. The infection travels by blood- and lymph-streams and in autopsies posted, the internal organs are more or less attacked with lesions and distributions as in tuberculosis. In its predilection for organs the two diseases are rather similar.

Most of the previous patients were treated with potassium iodid accompanied with surgery. All cases recorded are fatal but one, the first symptom of that being a bone lesion of the ankle. The leg was amputated before other lesions developed and the patient is reported alive and well.

REPORT OF CASE

The patient was a Japanese, aged 30 years, a farmer by occupation, who had lived in California since coming from Japan in 1909.

The previous history was negative except for the diseases of childhood, venereal diseases being denied. During the year 1910 he was working in the San Joaquin valley as a teamster in a vineyard. January, 1911, he was taken ill, treated for typhoid fever and was in bed for two months. During the latter part of this time tenderness developed in the right heel with slight swelling. After the fever abated the patient was permitted to be up; the tenderness and swelling remained. During the latter part of March, pain and tenderness developed in the left shoulder and later in the left hip. Work was resumed, but in a few days he was compelled to stop on account of weakness.

In July the patient first came under observation presenting the following symptoms: He was fairly well nourished with the appearance of being ill, with pain, tenderness and swelling at the crest of the left ileum near the sacro-iliac joint and of the right heel, the os calcis and ileum showing bone destruction by the *x*-ray. There were slight swelling and tenderness over the left scapula and in the right hand over the second and third metacarpal bones. Further physical examination proved negative except for a slight tenderness along the colon.

Surgery was resorted to, incisions being made along the crest of the ileum and over the os calcis posteriorly; the necrosed bone was curetted and drained. A great deal of pus-like material escaped with necrotic bone, which at this time gave no growth on agar; smears showed granular material without leukocytes or bacteria. He was in the hospital for six months, during which time similar lesions gradually developed in the left scapula, right metacarpal bones, lower end of the left humerus and left tibia. These received the same operative treatment with no tendency to close in spite of all after-treatment. A small nodule developed on the forehead midway between the hair line and the glabella, which grew to be as large as a hazel-nut without tenderness or tendency to soften, being firmly attached to the bone, but not to the skin. There were occasional slight rises of temperature during the later part of the patient's stay at the hospital.

Fortunately before leaving the hospital Dr. Harry Foster, bacteriologist for the Cutter Laboratories, cultured the lesion and found the causative agent to be a mold, which was passed through animals and classified as an oidium, later being identified by Dr. William Ophüls of San Francisco as *Oidium coccidioides*.

In January, 1912, the patient passed from observation, having left for Japan, where he died two months later.

The Widal reaction was repeatedly negative and the blood-counts showed a slight leukocytosis without increase in the polymorphonuclears. No typhoid bacilli could be found by culturing the urine. The von Pirquet test proved negative, also the Wassermann; but in spite of the latter, salvarsan was given intravenously, followed by inunctions of mercury and long-continued doses of iodids.

1. Brown, Philip King: Coccidioidal Granuloma, THE JOURNAL A. M. A., March 2, 1907, p. 743.
2. Rixford, E.: Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-Sixth Annual Session, July, 1905.
3. Rixford and Gilchrist: Two Cases of Protozoan (Coccidioidal) Infection of the Skin and Other Organs, Johns Hopkins Hosp. Reports, I.
4. Ophüls, William: Coccidioidal Granuloma, THE JOURNAL A. M. A., Oct. 28, 1905, p. 1291.
5. Hektoen, Ludvig: Systemic Blastomycosis and Coccidioidal Granuloma, THE JOURNAL A. M. A., Sept. 28, 1907, p. 1071.

Abuse of Lord Lister.—The opponents of all experiments on animals can only see the pain inflicted on dumb creatures; they seem unable to realize the pain prevented by the experiments. They have even been known to abuse Lord Lister, although he, more than any other man living, has been the means of preventing the greatest suffering and of checkmating for a time our common enemy, death. They see plainly the pain which he deliberately caused to a few rats and rabbits, but they seem incapable of understanding the incalculable amount of misery which he has prevented.—F. M. Sandwith in *Clin. Jour.*

ACUTE REFLEX DISORDERS CAUSED BY THE CINEMATOGRAPH

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That the moving-picture shows cause, in many spectators, functional diseases similar to those of eye-strain and ocular labor must have been noticed by every general practitioner and oculist of the cities, and yet, so far as I know, none has publicly directed attention to this important fact. I have had so many patients who have been made sick at these places of amusement that I now ask routine questions to elicit this etiologic factor. Not one had thought of the connection, so unobservant are patients in such things, so uninstructed have they been left as regards the use of the eyes and sequent nervous and gastric disorders. "What were you doing the evening or afternoon previous to your headache or giddiness, or upset stomach?" "O, nothing at all," is the usual answer, "nothing out of the ordinary; I was at the movies for a couple of hours, and went to bed at once, as I was feeling bad." General physicians, oculists, opticians, gastrologists and neurologists should therefore be on their guard as to this new and unsuspected cause of certain acute functional disorders of which patients may complain.

The symptoms do not, in my experience, differ essentially or greatly from those commonly caused by eye-strain of any kind, or from any variety of abuses of the eyes. The most common, of course, are headache, sick headache, migraine—that is, in one or several of its thousand protean forms. A few symptoms that are perhaps more frequent and emphasized than others are intense ocular and cerebral weariness, a sort of dazed, "good-for-nothing" feeling, lack of energy, of appetite, etc., to which almost as frequently may be added, "upset stomach," even vomiting, sleepiness and other similar effects of ametropia, bad spectacles, disuse of good ones, etc.

If by wearing accurate corrections of ametropia the patient has previously been made aware of their power to banish suffering of many kinds and intensities, he (or she) at once may think, "My glasses need changing." This, of course, may be true, but on consultation with the oculist his discriminating questions as to the cinematograph will bring out that especial cause as the chief one to be avoided.

But if "the movies" are not to blame, or not solely to blame, then the good advice will follow that the correcting lenses will possibly enable the patient to go to these shows without the appearance of the distinctive symptoms. With uncorrected ametropia, the cinematograph will more certainly bring about migrainous and nervous symptoms in the patient than when good glasses are worn, because there is no doubt that the cinematograph pictures put a frightful task on even the least defective eyes, whether glassed or not, but the strain is doubled by bad glasses, or by lack of glasses when they are needed.

The retinal and cerebral exhaustion and reflexes at the picture shows have, or may have, several more or less distinctive factors. The expert who has closely observed and analyzed the morbid results in himself will, of course, at once pounce on the chief source of the mischief—the lack of swiftness and accuracy in the sequence and superposition of the individual pictures thrown on the screen or mirror.

The cinematograph has at least four major pathogenic faults:

1. The fixation-point chosen by the eye and attention is, of itself, frequently unstable and tremulous or jerky in movement. This is brought to consciousness by observing attentively a fixed object in the picture, as a post, or tree. Both eye and mind are confused by this utterly unnatural movement.

2. The individual images of the screen-picture are often superposed so slowly that they are separately perceived instead of being fused into a continuum, or flowing unity. There results a swiftly passing series of slightly differing pictures on the retina instead of the desired continuity of one into another. Eye and brain have never had to endure such a series of disconnected stimuli as this unendurable fluttering.

3. There is a ceaseless and exacting conflict between the parts or locations of the individual pictures demanding the attention of the eyes and of sensation which thus dance from one point to another of the ever-moving points of interest.

4. The illumination of the scenes is usually wretched.

Progress in the mechanical and photographic mechanisms may improve some of these faults and difficulties, but it is doubtful if, singly or collectively, they can be entirely avoided. The average rate of exposure of the images or films is about sixteen per second, but if the motions of the scene or objects photographed are rapid, as in galloping horses, for instance, the time of exposure of each image must be of much shorter duration. In any case the time of exposure should be so short as to avoid the exhausting labor of eye and brain by the visualization of individual images. The poor illumination must be improved, and this should be demanded of the companies.

In about a dozen years the business of the cinematograph shows has grown from nothing to its present astonishing capitalization and popularity. In our country alone there are said to be between 12,000 and 20,000 moving-picture theaters, i. e., one to every 8,000 or 5,000 inhabitants, approximately.

The total investment in the business is thought to be about fifty million dollars. It is seriously proposed to carry on a large proportion of school-teaching and of medical, hygienic and scientific instruction by means of the cinematograph. Goods are bought and sold by means of the pictures, and their uses are multiplying in every department of commercial and social life. If it is true that about five million spectators are in daily attendance at the picture-show theaters, the consequent eye-strain injuries and sufferings must be enormous, however conservatively estimated, and there is little likelihood of their exaggeration by hygienists and physicians.

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IRRITATION FROM IODIN AND MERCURY ON THE SKIN

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With the present wide use of tincture of iodin for skin sterilization, the following case and deduction may prove of interest and value:[1]

Mrs. N. applied for treatment for an infected right index-finger, Oct. 3, 1912. The skin covering the finger and over the anterior and posterior surfaces of its metacarpal bone was disinfected with tincture of iodin. A three-quarter-inch incision over the distal phalanx evacuated a little pus; a small drain was inserted into the wound and the finger and hand were covered with gauze soaked in 1:1,000 mercuric chlorid solution. A gauze bandage covered the finger, hand and wrist.

1. In this connection, see THE JOURNAL, Nov. 2, 1912, Department of Queries and Minor Notes, page 1641.

The patient was directed to pour 1:1,000 mercuric chlorid solution over the entire finger every three hours without disturbing the dressing. Because of the severe burning pain the dressing was renewed the following day. An intense dermatitis with many blisters, some fully an inch in diameter, covered the whole area of iodin sterilization. The relief of this most painful complication consumed about two weeks.

If a test-tube is filled with 1:1,000 watery solution of mercuric chlorid and 2 or 3 drops of tincture of iodin are added, the chemical reaction becomes apparent, red mercuric iodid being formed. The latter according, to Wood, "is a powerful local irritant." In the case cited, the watery solution of mercuric chlorid, which saturated the dressings, reacted with the iodin on the skin, converting it into red mercuric iodid.

I caution against the combined use of tincture of iodin on the skin and the saturation of the dressings with the watery solution of mercuric chlorid.

1120 Fifth Street, N. W.

CHANCRE DEVELOPING FOUR DAYS AFTER SALVARSAN INJECTION

MELVIN ROSENTHAL, M.D., BALTIMORE

History.—February, 1905, J. B. came to me suffering with an indurated sore on the penis, which had persisted for nearly three weeks. There were a double inguinal adenitis, extensive macular eruption and patches in the mouth and on the tonsils. A diagnosis of syphilis was made and the patient given the inunction treatment. For three years he religiously followed the treatment which consisted of inunctions at first, followed later by mercurial injections and at varying intervals mercury by the mouth.

March, 1910, the patient returned with the history that for two years he had done nothing in the way of treatment for his syphilis. He had been absolutely free from any symptoms and enjoyed good health. He weighed 190 pounds which was 20 pounds more than he weighed before contracting the disease. He consulted me as to the advisability of having a Wassermann test, having read of the infallibility of the reaction. His mind was unduly occupied with matters syphilitic and he was well informed on recent advancements in the study of the disease. The Wassermann report was negative. The combination of events prompted me to assure the patient of freedom from any future complications.

December, 1910, the patient insisted on a confirmatory Wassermann since reading that "a positive Wassermann is proof positive of the existence of syphilis but a negative result may be accidental or transient." The second report gave a similar negative result.

Examination.—November, 1911, the patient, presenting the following symptoms, applied for relief. For several months he had had periodic attacks of intense pain radiating down the legs. He at first attributed them to exertion but since they came on independently of any exercise he abandoned that theory. He had also had irregular abdominal pains at times, followed by nausea and vomiting, but unassociated with the presence of food in the stomach. The knee-jerk was lost on the right side and diminished on the left. A provisional diagnosis of locomotor ataxia was made. Jan. 5, 1912: Since his last visit the patient has consulted Dr. Peterson of New York who confirmed the diagnosis of locomotor ataxia and advised the use of salvarsan.

Treatment.—January 8, an intravenous injection of 0.6 gm. salvarsan was followed by slight discomfort, dizziness and headache for several hours. January 12, the patient showed a small erosion on the glans penis, which looked not unlike an abraded surface after a vesicle has ruptured. Having on a number of occasions seen herpes follow the administration of salvarsan I concluded that the sore was herpetic, and prescribed accordingly. January 18, the sore was distinctly indurated and there was some inguinal adenitis, although spirochetes were not found. I am frank to admit that I was not disappointed at the failure to find the organism, being satisfied that the sore was an infected herpetic eruption. Local treatment of the sore was stopped and on January 22 the edges of the sore were markedly indurated, the inguinal glands were large and a decided macular eruption appeared on the body. An examination of the serum from the sore showed undoubted spirochetes and a Wassermann made on the following day was positive. There has been no change in his tabetic symptoms. A week later the patient left the city and I have been unable to get into communication with him since that time.

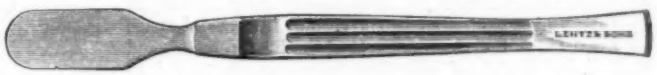
The unusual features of this case are, first, the development of a disease, presumably of syphilitic origin, in an individual giving repeated negative Wassermann reactions; second, that a man suffering from the direct effects of syphilis should contract a chancre and, third, that a chancre should develop four days after an intravenous injection of salvarsan. I feel confident that the possibility of faulty technic or other errors in making of the serum reactions may be eliminated, since they were made by a laboratory worker of undoubted skill and ability.

718 North Howard Street.

PROSTATECTOMY KNIFE

E. H. SITER, M.D., PHILADELPHIA
Department of Genito-Urinary Surgery, University of Pennsylvania

The difficulty in incising the capsule of the prostate with the ordinary sharp-pointed knife, and the possibility of hemorrhage from inserting the knife too deeply into the tissue, led me to devise the instrument shown in the illustration.



Prostatectomy knife.

The object was to have the "belly" or cutting edge of the knife on the end instead of on the side. It will be found valuable in dividing the capsule for the suprapubic operation. Being flat it is easily guided, and being pointless it reduces to the minimum the danger of puncturing any blood-vessel.

I find that one incision over each lobe is sufficient to allow me to get the line of cleavage, and I have had no hemorrhage or profuse bleeding since I began its use; I think that the bleeding has been reduced to the oozing, which is of minor importance and need cause the operator no uneasiness.

2038 Locust Street.

Therapeutics

DISTURBANCES OF THE HEART

(Continued from page 2153)

TRICUSPID INSUFFICIENCY

This rarely, if ever, occurs alone; it is generally a sequence of other valvular defects, and represents an overworked, dilated right ventricle. It may, however, occur from lesions of the lungs which impede the blood-flow through them. Such are fibroid changes in the lungs, emphysema, prolonged chronic bronchitis, the last stages of pulmonary tuberculosis, old neglected pleurisies with cirrhosis or fibrosis of the lung, and repeated attacks of asthma — anything, whether valvular defect or pulmonary circulatory disturbance, that increases the pressure ahead and the work of this ventricle.

The symptoms are those of loss of compensation as described under other valvular lesions. There may be

jugular pulsation, especially evident in the external jugular on the left side. The liver enlarges and may pulsate. There are edemas, dropsies, ascites and perhaps hemorrhages. The heart is enlarged and there is a soft systolic blow heard at the lower end of the sternum. The dyspnea is sometimes very great, and cyanosis may be present, especially during paroxysms of coughing.

This lesion of the heart is always benefited by digitalis, but the continuance of the improvement and its amount depend, of course, on the cause of the dilatation of the ventricle. Strychnin is often of advantage. These patients should rarely receive vasodilators, and hot baths, overheating, overloading the stomach and vigorous purging should never be allowed. Sometimes improvement will not take place until ascitic or pleuritic fluid, if present, has been removed.

TRICUSPID STENOSIS: TRICUSPID OBSTRUCTION

This is rare and probably always congenital, and is supposed to be due to an inflammation of the endocardium during intra-uterine life. In early childhood it is possible that it may be associated with left-side endocarditis.

A special treatment of the heart, if any is needed, would probably not be indicated unless there was associated tricuspid insufficiency, when digitalis might be used.

PULMONARY INSUFFICIENCY: PULMONARY REGURGITATION

If this rare condition occurs, it is probably congenital. A distinctive murmur of this insufficiency would be diastolic and accentuated in the second intercostal space on the left of the sternum. It should be remembered that aortic murmurs are often more plainly heard at the left of the sternum. Sooner or later, if this lesion is actually present, the right ventricle dilates and cyanosis and dyspnea occur. Digitalis would therefore be indicated.

PULMONARY STENOSIS: PULMONARY OBSTRUCTION

If stenosis is actually present in this location, the lesion is probably congenital. It might occur after a serious acute infectious endocarditis, but then it would be associated with other lesions of the heart. It has been found to be associated with such congenital lesions of the heart as an open foramen ovale or foramen Botalli, or with an imperfect ventricular septum, and perhaps with tricuspid stenosis — in short, a cardiac congenital defect. The right ventricle becomes hypertrophied, if the child lives to overcome the obstruction.

The physical sign is a systolic blow at the second intercostal space on the left; but as just stated, such a murmur must surely be dissociated from an aortic murmur if found to develop after babyhood, and it should also be diagnosed from the frequently occurring hemic, basic and systolic murmurs; that is, if signs of pulmonary lesions are not heard soon after birth or in early babyhood, the diagnosis of pulmonary defects can be made only by exclusion.

Unless the right ventricle is found later to be in trouble, there is no treatment for this condition. If the right ventricle dilates, digitalis may be of benefit.

ACUTE CARDIAC SYMPTOMS: ACUTE HEART ATTACK

It is not proposed here to describe the condition of sudden cardiac failure, or acute dilatation during disease, or after a severe heart strain, but to describe the terrible cardiac agony that occurs, sometimes repeatedly, with many patients who have valvular lesions. These patients may not have the symptoms of loss of compensation. Probably some one or more chambers of the heart become overdistended and act irregularly, or the blood is suddenly dammed up in the lungs, with the oppression and dyspnea caused by such passive congestion, or perhaps it is the right ventricle that is suddenly in serious trouble.

A physician receives an emergency call, and knows, if it is not a patient who has hysteria, that it is his duty to see the patient immediately. The friends of the patient all anxiously await the physician's arrival; front doors are often wide open, and the servants and the whole household are in a great state of excitement and anxiety. The position in which the patient will be found is that which he has learned gives him the greatest comfort. If the physician knows his patient, he will know how he will find him. He may be sitting up in bed; he may be standing, leaning over a chair; he may be sitting in a chair leaning over a table or leaning over the back of another chair; but he is using every auxiliary muscle he possesses to respire. He is generally bathed in cold perspiration; the extremities are often icy cold; he calls for air, and to stop fanning all in one breath; he wishes the perspiration wiped off his brow, and nearly goes frantic while it is being done; there is agony depicted on his face; his eyes stare; his expirations are often groaning. Sometimes there is even incontinence of urine and feces, often hiccup or short coughs, perhaps vomiting, and possibly sharp pangs of pain in the cardiac region. A patient with these symptoms may die at any moment, and the wonder is that so many times one lives through these paroxysms.

The patient can hardly be questioned, can certainly not be carefully examined; and herein lies the advantage of the family physician who knows the patient and his heart, and in whom the patient has confidence. In fact, this confidence which such a patient has in the physician who has more or less frequently aided him in weathering these terrible attacks is alone the greatest boon the patient can have.

The immediate conditions to meet are the rapid, fluttering heart, the nervous excitation and cardiac anxiety, and perhaps the most important of all, the vasomotor spasm that is often so pronounced. Physically we have, then, a heart with leaking or constricted valves; in either case more blood is entering the chambers of the heart than can be expelled in one contraction, while the peripheral resistance due to the spasm of the blood-vessels, because of fear, becomes greater every minute and tends still more to interfere with the peripheral circulation and the complete emptying of the heart of its surplus blood. Owing to the well-known stimulus to distention of hollow muscular organs, the heart contracts faster and faster. Soon, by some disarrangement of the inhibitory apparatus, the pneumogastric nerves, the heart loses its governor, and the beats increase to even 150 a minute, with irregular contractions, the blood being sent through the arteries with irregular force, as evidenced by the varying volume of the pulse. At this time, with or without cardiac pain, which upsets the rhythm of the heart, the patient becomes frightened at the feeling of impending demise, and the cerebral reflexes begin to add to the cardiac difficulty. The breathing becomes nervously rapid, besides that which is due to the rapid heart. The chill of fear is added to the already contracted peripheral vessels, and the surface of the body becomes cold, the extremities sometimes intensely so. Next it seems as if the strongly contracted

arterioles begin actually to prevent some of the peripheral circulation, the blood is piled up in the large arteries, and the venous circulation becomes more and more sluggish, while the lips, finger-nails and forehead become cyanotic. Respiration becomes more rapid and deep, the inspiration being as strong as possible with every auxiliary muscle taking part, thus making the negative pressure in the chest aid in bringing the blood back through the veins. Part of the extra respiratory stimulus comes from the imperfectly aerated blood reaching the respiratory center.

Two factors may normally, without treatment, stop these paroxysms, and the "bad heart turn" may be cured spontaneously. The first of these is self-control. If the patient does not lose his head, by an effort of the will he saves himself from becoming nervous or frightened and therefore escapes the result of mental excitement; the increased peripheral blood-pressure from fear does not occur, and in a shorter or longer time the heart quiets down. The physician recognizes this power, and gives his patient immediate assurance that he will soon be all right; the patient who knows his physician immediately feels this assurance and is quickly improved.

The second factor in spontaneous cure of the heart attack is relaxation. The exhaustion from the respiratory muscular efforts together with the drowsy condition caused by the cerebral hyperemia and from the imperfectly aerated blood causes finally a dulling of the mental acuity, and the nervous excitement abates, which, with the exhaustion, gives a relaxation of peripheral arterioles; the resistance to the flow of the blood is removed, the surface of the body becomes warm, the heart quiets down by the equalization of the circulation, and the paroxysm is over.

The part the nervous system plays in this paroxysm is shown by the good result obtained from injections of morphin, even when there is no pain; hence the action of morphin is directly in line with the natural resolution of the symptoms: it quiets the nervous system, causes drowsiness, relaxes spasm, and thus causes increased peripheral circulation; many times this is the only treatment necessary.

During these heart attacks it is more than useless to administer any drug by the stomach, as in this condition there will be no absorption, even if there is no vomiting.

While morphin is generally indicated, as just suggested, a very large dose should not be given, lest the activity of the respiratory center is impaired (it is already in trouble), and undoubtedly death may easily be caused by an overaction of morphin during these heart attacks. The addition of atropin to the morphin will prevent depression from the morphin. Also, atropin sometimes quiets cardiac pain, but it will not steady the heart, may irritate it, and will increase vasomotor tension, although peripheral nerve irritation may be diminished. Hence a fair dose of morphin hypodermatically with a small dose of atropin, if respiratory depression is feared, is a physiologic method of bettering the condition.

In this kind of heart attack a drug that often acts well is nitroglycerin. It may be given hypodermatically in a dose of 1/200 to 1/100 of a grain, or a tablet may be dissolved on the tongue, and the dose be repeated once or twice at fifteen-minute intervals, until there is throbbing in the forehead, which shows that a sufficient amount of the drug has been administered. This headache will generally not last long. In the meantime the peripheral blood-vessels are relaxed, the surface of the body becomes warm, the heart quiets, and the attack is over. To hasten the action of nitroglycerin (that is, to equalize the circulation) a hot foot-bath is often valuable. Amyl nitrite may be inhaled with the same object in view, but the action is very intense, the prostration often severe, and unless there is angina pectoris, nitroglycerin is much better.

The symptoms of a heart attack may not be quite those above described; they may be those of sudden dilatation or semiparalysis of the heart, in which the prostration is intense and the patient is unable to sit up, although he may be leaning against several pillows. There is dyspnea, but the patient cannot aid respiration with the auxiliary muscles by holding the arms and shoulders tense or obtaining support from the arms; in fact, the arms are almost strengthless. The surface of the body may be warm, and the arms may be warm except the hands; the feet, ankles and legs may be cold. There is generally more or less cyanosis, although the face may be pale. The finger-nails often show venous stasis. In these cases the blood-pressure is subnormal, the pulse may be hardly perceptible, and there is none of the tension of the body from fear. The patient may be fearful, but he is completely collapsed. Such an attack may occur suddenly in a heart that is perfectly compensating, or it may accompany general edemas and dropsies.

If the emergency is excessively urgent, the lungs filling up with blood, moist râles beginning to occur, and frothy and blood-tinged sputum being coughed up, venesection may be indicated; combined with proper hypodermatic medication it may save life, and does at times. In fact, a patient who shows every sign of fatal cardiac collapse may be saved.

One of the best drugs to administer to such a patient is an aseptic ergot, injected intramuscularly. The drug of all drugs for future action (as it will not act immediately) is digitalis, and perhaps best, in this condition, in the form of digitalin. (See N. N. R., p. 68.) The dose of German digitalin may be from one-tenth to one-fourth grain, or even more. This dose, or a smaller dose, may be repeated in three or four hours, if deemed advisable. Whether digitalis shall be given at all, or how large the dose shall be depends on whether the patient has been taking digitalis in large quantities or not. He may already be overpowered with digitalis. In that case it would be contra-indicated.

Strophanthin, especially when given intravenously, has been found to be a quickly acting circulatory stimulant. The dose of strophanthin, Merck, ranges from 1/500 to 1/200 grain. The intravenous dose of strophanthin, Thoms, is about 1/130 grain. It should not be repeated within a day or two, if at all.

Atropin in a dose of 1/150 grain, and strychnin in a dose of 1/40 or 1/30 are valuable aids in stimulating the circulation under these conditions. The atropin should not be repeated. The strychnin may be repeated in three, four or five hours, depending on the size of the previous dose.

Of all quickly acting stimulants none is better than camphor in saturated solution in sterile oil as may be obtained in ampules. Alcohol is absolutely contra-indicated in the latter condition. In the former kind of heart attack, vasodilatation from a large dose of whisky or brandy may be of value. The dose should be large to cause immediate increased peripheral circulation, dilatation, and even a little stupefaction of the central nervous system, and it may be effectual in a way not dissimilar to the action of morphin.

(To be continued)

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[For other information see second page following reading matter]

SATURDAY, DECEMBER 21, 1912

BARIUM POISONING AND LOCO-WEED DISEASE

Some time ago[1] mention was made in these columns of the investigations of Dr. A. C. Crawford, then pharmacologist in the Bureau of Plant Industry, on the nature of loco-weed disease. This malady is a source of great loss to the stockmen of many of the grazing states of the West. Crawford concluded that, in certain regions at least, the inorganic constituents of the plants, especially barium compounds, are responsible for the symptoms of loco-poisoning. He asserted that the main toxic features described in stock on the range can be reproduced in rabbits by feeding extracts of certain loco-plants, and that a close analogy exists between the clinical symptoms and the pathologic findings in barium poisoning and those resulting from these experiments.

This announcement aroused a wide-spread interest because of its essential novelty. Toxic principles in plants had hitherto usually been looked for in the guise of organic compounds, such as the alkaloids and toxalbumins. Now, however, the inorganic components of the vegetable forms were called on to explain deleterious effects; and the example which was found to represent them was an element, barium, which had not commonly been taken into account in such relationships. If plants readily take up toxic quantities of such elements from soils which yield them, an unexpected and subtle source of danger confronts us.

Dr. Carl L. Alsberg and Mr. O. F. Black, chemical biologists in the U. S. Bureau of Plant Industry, have reinvestigated this important question.[2] They have arrived at the conclusion that the etiologic factor in the loco-weeds which is responsible for the toxicity of these plants in laboratory experiments is not barium. Many kinds of plants from the western states and other regions contain barium in amounts of the same order of magnitude as in loco-plants; yet there is no evidence that such plants injure stock on the range.

In dried loco-plants the barium is contained in almost insoluble form. One might obviously think of the acidity of the gastric juice as an aid to solution; but even extracts prepared by digesting successively with artificial gastric and pancreatic juices contain but slight traces. As for the animal experiments, it was shown that there are usually enough salts of calcium, potassium and metals other than barium in appropriate portions of loco-plant extracts to account for death in the usual toxic dose for rabbits. Furthermore, similar extracts of alfalfa, which no one charges with special toxicity, may also cause the death of animals in similar dosage.

These negative findings of Alsberg and Black are fortified by the newer observations in the field where the conditions pertaining to range animals are met.[3] It is now judged that the symptoms and pathology of barium poisoning differ in a marked degree from those noted in loco-poisoning. Typical loco-poisoning, according to Marsh, is not produced by barium feeding alone. If barium were the cause of loco-poisoning, sulphates which form insoluble compounds of the element would be a logical antidote. It appears, however, that experimental administration of magnesium sulphate (Epsom salts) or sulphuric acid in amounts much greater than those necessary to combine with the barium in the loco eaten had no antidotal effect.

These newer observations all argue against the specific toxic action of barium in loco-plants. The amounts present — rarely more than traces — are too small to prove fatal; and the metal is present in some insoluble form, probably as sulphate or silicate. Loco-weed disease needs renewed investigation.

1. The Rôle of Barium in Loco Poisoning, THE JOURNAL A. M. A., Feb. 8, 1908, p. 458; Barium a Cause of the Loco-Weed Disease, ibid., Oct. 17, 1908, p. 1338.

2. Alsberg, C. L., and Black, O. F.: Laboratory Studies on the Relation of Barium to the Loco-Weed Disease, U. S. Dept. Agric., Bureau Plant Ind., Bull. 246, 1912

3. Marsh, C. D.: A Field Study on the Relation of Barium to the Loco-Weed Disease, U. S. Dept. Agric., Bureau Plant. Ind., Bull. 246, 1912.

TYPHUS FEVER

It has been about seventy-five years since Gerhard, an American physician, convincingly demonstrated on clinical and pathologic grounds the non-identity of typhus and typhoid fevers. Up to three years ago our knowledge of the disease stood almost exactly where it was at the time Gerhard first drew attention to its differences from typhoid. In the last three years greater advance has been made in our knowledge of the disease, largely through the work of American investigators, than in the previous three-quarters of a century.

Last week we discussed[1] some of the factors that have contributed to the wonderful recent advances that have been made in our knowledge of the cause and means of transmission of communicable diseases. Reference was made to the fact that without the use of the monkey as an experimental animal our knowledge of typhus would still probably be where it was in Gerhard's time. In July, 1909, Nicolle[2] reported the successful infection

1. Factors Contributing to Recent Advances in Our Knowledge of Communicable Diseases, editorial, THE JOURNAL A. M. A., Dec. 14, 1912, p. 2157.

2. Nicolle, C.: Reproduction expérimentale du typhus exanthématique chez le singe, Compt. rend. Acad. d. sc., July 12, 1909, p. 157.

of a chimpanzee with typhus by inoculation with blood from a case of the disease in man. A few months later Anderson and Goldberger,[3] of the U. S. Public Health Service, by the successful infection of the rhesus and the capuchin monkeys, and by showing that these were thereafter immune to subsequent infection, not only confirmed this report but further showed what Nicolle's work indicated, that the fever so induced in the monkey was typhus. Following this pioneer work on the disease of Nicolle and his co-workers, and of Anderson and Goldberger, came reports in rapid succession of similar results from Ricketts and Wilder, Gaviño and Girard, and others.

Nicolle, Comte and Conseil[4] were the first to report the successful transmission of the disease by the bites of the body-louse (*Pediculus vestimenti*). Since then this finding has been confirmed by Ricketts and Wilder, and by Goldberger and Anderson, and it may be considered as definitely established that typhus fever is transmissible by the bite of this insect and possibly by the bite of the head-louse. The untimely death of Ricketts put an end to his work, but Nicolle and his associates have continued their work on the disease in Africa and have brought out many points of interest. Gaviño and Girard, from Mexico, have also reported work of importance, especially in regard to the nature of the virus and the susceptibility of the guinea-pig to the disease.

One of the most notable advances in our knowledge of typhus was the demonstration early in the present year by Anderson and Goldberger of the Hygienic Laboratory, that typhus was identical with a disease described by Brill of New York and that, instead of being extinct in the United States as almost universally considered, it has actually been endemic in this country for years.[5] Cases have been reported from Brooklyn, Chicago, New York, Philadelphia, and recently at the Southern Medical Association, Paulin reported cases from Atlanta. Since the report by Anderson and Goldberger of the identity of Brill's disease and typhus, these workers have continued their work on the disease, and in a recent bulletin[6] of the Hygienic Laboratory have brought together all their work on typhus under one cover. The publication is one that will be of the utmost value fo students of the disease. The last paper[7] in the bulletin is the only one of the articles not previously published, and is chiefly concerned with the question of immunity and the method of transmission.

In a study of the susceptibility of the monkey to typhus, the authors found that a large proportion (about 22.4 per cent.) of rhesus monkeys possess at least a transient immunity to infection, and that in about 3.5 per cent. of their monkeys the resistance amounted to a permanent natural immunity. A well-marked typhus reaction confers on the rhesus monkey an immunity that may be present after at least two years. It has been found that fever is the only definite clinical index of a typhus reaction in a monkey, but when clearly marked it is ordinarily sufficient to justify a diagnosis of the disease. When the fever was slight or its course atypical, in the opinion of the authors it could not be construed as a typhus reaction unless the immunity test proved the animal resistant to infection; but should the immunity test show that resistance has not been conferred, a diagnosis of previous typhus was not permissible. The incubation period in about 90 per cent. of their monkeys, experimentally infected, varied between six and ten days, and in 103 cases of typhus in the monkey there occurred four deaths. Anderson and Goldberger confirm the reports of Nicolle and his co-workers, and of Gaviño and Girard, as to the susceptibility of the guinea-pig to infection with typhus. It was found that this animal reacts in essentially the same way to an inoculation of typhus blood as does the monkey and that, as with the monkey, one attack confers immunity to a subsequent infection. They found that in a certain proportion of cases rabbits may be infected with typhus by blood inoculation.

Typhus-immune serum obtained between the fifth and the fourteenth days of convalescence has protective value when injected simultaneously with the inoculation of virulent material or within forty-eight hours afterward; but immune serum obtained on the thirtieth day of convalescence probably has no appreciable protective influence. When immune serum and virus are inoculated simultaneously, immunity to subsequent infection does not result; but when the immune serum is injected forty-eight hours after the virus an immunity, probably active in nature, may take place. An attempt to infect a monkey with typhus by means of freshly hatched body-lice, the progeny of presumably infected mothers, was negative. In the opinion of Anderson and Goldberger, satisfactory evidence of hereditary transmission of the virus in the louse has not yet been presented. Attempts to transmit typhus by means of the bites, or by subcutaneous injection of crushed bedbugs that had previously been allowed to feed on infected monkeys were negative. They were also unable to produce typhus in monkeys by the injection of the buccal and pharyngeal secretions from human cases of the disease, and therefore express the opinion that droplet infection plays no part in the transmission of the disease.

While the work of American investigators has added so much to our knowledge of typhus fever, the cost has been great. Of the three different groups of American investigators, composed of two each, two (Ricketts and

3. Anderson, J. F., and Goldberger, Joseph: A Note on the Etiology of "Tabardillo," the Typhus Fever of Mexico, Pub. Health Rep., Dec. 24, 1909, p. 1941; The Infectivity of Tabardillo, or Mexican Typhus, for Monkeys and Studies on Its Mode of Transmission, ibid., Feb. 18, 1910, p. 177.

4. Nicolle, C., Comte, C., and Conseil, E.: Transmission expérimentale du typhus exanthématique par le pou de corps, Compt. rend. Acad. d. sc., Sept. 9, 1909, p. 486.

5. See Demonstration of the Identity of So-Called Brill's Disease with Typhus Fever, editorial, THE JOURNAL A. M. A., Feb. 10, 1912, p. 414.

6. Collected Studies on Typhus, Hyg. Lab. Bull. 86, 1912.

7. Anderson, John F., and Goldberger, Joseph: Studies in Immunity and Means of Transmission of Typhus, No. 7, in Hyg. Lab. Bull. 86, 1912.

Conneff) died from the disease contracted in Mexico and one (Goldberger) was seriously ill. This is another instance of the devotion of men of science to their calling and their willingness to expose themselves to disease and possibly to death in hope of furthering our knowledge. Each year sees additions to this roll of martyrs to medical science, a roll including Lazear, Myers, Dutton, Ricketts, Conneff, McClintic and others.

A REWARD FOR COLONEL GORGAS

Bills have recently been introduced into the Senate and House of Representatives looking to the reward of Colonel Goethals by authorizing his appointment as an additional major-general, and, in the discretion of the President, providing for his assignment as chief of engineers. This proposition suggests several comments, the first of which is that it makes no provision for the reward of Colonel Gorgas. It is also defective in that its provisions depend in part on a contingency which Congress cannot control, because the selection of the chief of engineers is a constitutional function of the executive.

It is now recognized by all well-informed persons that the sanitation of the Isthmus was as essential to the success of the canal construction as was the surmounting of the engineering difficulties, and, of the two sets of problems involved, the sanitary problems were newer and along less well-beaten paths than were the engineering ones. While Colonel Goethals is the administrative head of the commission, he and Colonel Gorgas have at present the same military rank. The applications of engineering science to canal construction have no intrinsic precedence over those of medical science to the new and complex questions of tropical sanitation; it would seem, therefore, that there should be little or no difference in the value of the rewards given the two, and it is appropriate that they be provided for in the same act.

There are some other considerations which might well be kept in view when such legislation is under consideration. This work is a great national enterprise which is apart from the usual activities of Army officers, and in no way connected with Army administration. The reward should be in keeping with the national dignity and the magnitude of the enterprise, and should be outside of the routine of Army promotions, so that other officers of the engineering and medical corps who have borne the burden of the routine but important work, without the incentives of increased pay and public applause, may not be called on to give their own ewe lamb of promotion as a contribution to the nation's gift.

Again, the officers of the military service are usually compelled by the requirements of their life to live up to their incomes, and when they die their families are left without decent provision. A major-general's widow receives the munificent pension of $30 a month. It would, therefore, be fitting that there should be added to the military promotion in rank a donation of money, as is the custom of the British government, so that the generosity of the nation could be applied by the recipient to the needs of those who are dearest to him.

A major-generalship with a cash donation would appear, therefore, the most convenient form of reward for each of these distinguished men, and the act should also provide that after their retirement the President should be authorized to place them on active duty with full pay and allowances whenever their advice or assistance is required on engineering and sanitary questions.

URBAN AND RURAL TYPHOID FEVER

There seems to be a wide-spread belief that typhoid fever is peculiarly a disease of small communities. The regular autumnal increase in this disease in most cities is even referred by some writers to infection contracted during a vacation "in the country." Whatever the importance of "vacation typhoid"—and there is reason to think it has been overestimated—there can be no doubt that, contrary to popular opinion, in some localities typhoid is more prevalent in urban communities.

The incidence of typhoid fever in city and country communities in several New England states has been recently studied by Sedgwick, Taylor and MacNutt.[1] These authors conclude that as far as the state of Massachusetts is concerned typhoid could not be said to be a rural disease in the eighteen years prior to 1908, but was on the contrary distinctly more prevalent in urban communities. In Connecticut a similar condition existed, but in New Hampshire it appeared that there was no marked difference in this respect between rural and urban groups. Before 1890, as these authors point out, typhoid deaths in both Massachusetts and Connecticut were more prevalent in proportion to the population in the country than in the city districts.

It is not difficult to understand these results. The death-rate from typhoid fever depends more on other factors than on city and country conditions as such. A large city with polluted water-supply may maintain a constantly higher typhoid fever rate than the adjacent country towns and rural districts. On the other hand a city with a good water-supply, a pasteurized milk-supply and a proper system of disposing of excretal refuse will to-day almost certainly have less typhoid fever than the smaller communities in its immediate neighborhood. Probably few places in the United States, large or small, will have so low a death-rate from typhoid for the year 1912 as Chicago and Cleveland.

Improper methods of disposing of excreta in the country, with the attendant danger of fly infection, would seem to favor the spread of typhoid fever in rural districts, but a counterbalancing factor is the contact with a large number of persons which is characteristic of city life and would tend to increase the opportunities for infection in cities through the agency of carriers or convalescents. There is no reason why a uniform differ-

1. Sedgwick, William T., Taylor, George Rodney, and MacNutt, J. Scott: Is Typhoid Fever a "Rural" Disease? Jour. Infect. Dis., 1912, ii, 141.

ence between city and country should be expected. In Austria the typhoid death-rate is lowest in communities with less than five hundred population, highest in those with from five hundred to two thousand, and then diminishes progressively until the cities with over twenty thousand population have a death-rate but slightly in excess of the small communities with less than five hundred inhabitants.

In other words, we cannot generalize by asserting that typhoid fever is more prevalent in either the city or the country. In some regions the factors that make for infection are more active in the large communities of those regions than the small communities; in others the reverse is true. Country or city life itself is in no way determinative of typhoid fever infection, and it is confusing to declare that typhoid is to-day either an urban or a rural disease.

ALCOHOL AND RACIAL DEGENERATION

A recent writer on the physiologic rôle of alcohol has well said that most discussions of the subject are frankly partisan and therefore partial. An account may be entirely accurate in all its affirmations and yet fail to be just, because of what it leaves unsaid in a matter so full of complex considerations. In any event propaganda must be preceded by facts, and these must, in turn, be evaluated in a critical spirit of fairness and with due regard to conflicting possibilities.

One of the important and widely discussed phases of the question involves the effect of alcohol on the offspring. Records of degenerates, statistics on insanity and other diseases have been gathered in abundance and contributed as evidence in one way or another. Statistics are proverbially uncertain unless they are collected with due intelligence and interpreted with reasonable precaution. This applies above all to human records; hence it is always gratifying to have observations involving such data substantiated by adequately controlled experiments on lower animals. It is with this end in view that Professor Stockard of the Cornell University Medical College, New York, has undertaken an experimental study of racial degeneration in mammals treated with alcohol.[1]

Alcohol or any other injurious substance may act as a parental poison to affect the offspring in more than one way. Since the quality of the offspring depends on both the perfection of the germ cells from which it arises and the nature of the environment in which the embryo develops, it will be noted that damaging effects may be directed to injure the ovum or spermatozoon before fertilization; or the embryo itself may be affected by being subjected to unusual physical or chemical surroundings. In the latter case a substance may so alter the pregnant female as to modify the resulting structure of the developing embryo. The possibility of damage arising in this way is emphasized by the fact that a passage of alcohol from the blood of the mother to the tissues of the fetus has been clearly demonstrated. The developing embryo or early fetus can show the effects by structural abnormalities of the nervous system, whereas the presence of alcohol in the blood of the later fetus may result in disorders of a mere functional type.

In Stockard's experiments alcoholic treatment was given to guinea-pigs by an inhalation method. A paternal test was applied by mating alcoholic males with normal females. This is obviously the crucial test for an influence on the germ cells; for here a defective offspring must be due to an altered spermatozoon, from which it arose, since the ovum and mother are unimpaired. In the maternal test alcoholic females were paired with untreated males. As Stockard remarks, here the mother has two chances to injure an offspring, either by producing a defective ovum, or by supplying an unfavorable or diseased environment in which the embryo must develop. The greatest chance for impairment lies, of course, in the matings in which both parents are alcoholic.

The outcome of these investigations has been convincing in their demonstration that alcohol may readily affect the offspring through either parent. Though the animals were never completely intoxicated, they may be described as having been in a state of chronic alcoholism. Nine control matings of normal animals in the same group gave nine living litters consisting in all of seventeen vigorous individuals. Out of forty-two matings of alcoholized animals only seven young survived and five of these were runts. In the paternal tests there were abortions, still-born litters and early deaths; the maternal test resulted much the same; when both parents were alcoholic, in most cases the matings resulted in no offspring, very early abortions, or still-born litters. The single offspring born living from fourteen matings of alcoholic parents died in convulsions at an early age. In general the deaths of these unhealthy young followed symptoms of nervous disorders.

Here are data to be reckoned with. In pointing to a specific affinity of alcohol for the developing nervous system these newer observations lead in the direction that has been indicated by statistical studies on defective human beings. They invest the records of degeneracy in relation to alcoholism with a new significance.

1. Stockard, C. R.: An Experimental Study of Racial Degeneration in Mammals Treated with Alcohol, Arch. Int. Med., October, 1912, p. 369.

SCIENCE AND MEDICINE

In an address[1] delivered at the dedication of the Lane Medical Library of Stanford University the president, Dr. David Starr Jordan, reviews some of the changes which medical science and practice have experienced in the past generation. The points of view of a thinker who has watched this progress from a period when the science of infectious diseases was at its beginning and antiseptics

1. Reprinted in Science, Dec. 6, 1912, p. 763.

were guesswork deserve a broader recognition, especially as they touch on some of the mooted aspects of modern medicine.

President Jordan has emphasized in a novel way the undeniable dictum that sound medicine must rest on science. As he remarks, science is alike to all men who have grasped its data and its conclusions; art will vary with the personality of those who practice it. An art which is not based on knowledge becomes a mystery or a trade. It is a mystery when practice is based on some theory of therapeutics which goes outside of human experience for its justification; and those who try to heal without knowledge of the actual conditions with which they deal are of necessity impostors.

This is a frank statement, indeed, of the fact that technical knowledge is a fundamental requisite which must be insisted on in those who profess to combat the ills of the human body. If this requirement is fatal to any school of therapeutics, it is time that that particular form of fraud should be done away with. There need be no hesitation about this natural limit of "medical freedom." The basis of so-called schools of theoretical medicine is a prearranged theory of the treatment of disease. They deal with symptoms in default of knowledge of the underlying causes; but when the knowledge is attained all healing methods must rest on the actual conditions rather than the surface indications. The preference for one mode of therapeutics over another should rest on science, on which all can agree, rather than on the varying theories of symptoms which furnish the excuse for the varying schools of medicine.

Dr. Jordan maintains that the form of quackery involved in the "patent medicine" arose out of the notion that a specific disease has a specific cure. He pays his compliment to the business by saying that the aggregate result of the "patent medicine" is the building up of gigantic systems of robbery, on the one hand, and a corresponding damage to public health on the other. The way out of this domination lies in the better training of physicians and the enlightenment of public opinion.

No system of philosophy or cult of religion can help us to find out what is the matter with a disordered organism and thus remove the cause from which the symptoms flow. The proposal of the "healers" not to deal with the body because it does not exist, and to "treat a belief in sickness as you would sin, with sudden dismissal" finds a cold reception at the hands of one who realizes that the whole fabric of modern science and modern civilization is based on the conception of the reality of external things. "It is undoubtedly true," says Jordan, "that a serene spirit is a valuable agency in the recovery from disease. It is likewise true that suggestion has a mighty potency when it is rightly applied. It is a legitimate and recognized branch of therapeutics, which may be destined to have a wide application in the future treatment of disorders of the nervous system. But it is likewise true that suggestion heals no broken bones; a spirit unperturbed gives no safeguard against poisoned mosquitoes and the power of the will and the imagination is potent chiefly against disorders of the imagination and the will. . . . It does not advance science to doubt the things we know to be true in order to give proof to propositions we know to be false. We may, therefore, be certain that progressive medicine will still believe in the reality of the human body and the rational veracity of the world of sense."

Dr. Jordan is a strong believer in the importance of governmental action in eliminating unnecessary disease and thereby contributing to the sum of human welfare. But governments as they are now framed and conducted do not appeal to him as ideally efficient agencies — they are ruled by traditions and prejudices and often inspired by doubtful motives. Perhaps he is somewhat too pessimistic in this direction. We must agree with him, however, in the contention that public opinion, the most effective factor in government, must be based on knowledge and molded by safe and sane leaders. Here lie the opportunity and duty of the modern man of medicine to join in the conduct of the affairs of the community so that the people will have a reliable guidance where governments sometimes fail.

Current Comment

FACTS ABOUT HEROIN

Although heroin (diacetyl-morphin) and its hydrochlorid have been in use but a few years, they have already established themselves among the habit-forming drugs and have become sufficiently conspicuous in this respect to awaken the thinking public to the deplorable results for which they may become responsible. These facts of themselves are sufficient to promote a scientific interest in the physiologic behavior of heroin and its fate within the organism. A comparison is at once suggested between heroin and the closely related alkaloids morphin and codein (methyl morphin). Aside from differences in the pharmacologic effects of these two substances, they apparently pursue a different path in the body. When morphin is introduced subcutaneously it is rapidly excreted into the stomach and, finding its way along the gastro-intestinal canal, may leave the organism to a large extent in the feces. Methyl morphin (codein), on the other hand, differs specifically in being eliminated almost exclusively through the kidneys. A recent study of the behavior of heroin[1] at the Pharmacologic Institute of the University of Berlin indicates that this drug is ordinarily excreted in large measure by the kidneys as is codein, while a smaller fraction may pass out through the bowel precisely as morphin does. There is a pronounced difference between morphin and codein in respect to the development of tolerance; in the case of codein the continued administration of the drug may even lead to hypersensitiveness quite in contrast

1. Langer, H.: Ueber Heroinausscheidung und -gewöhnung, Biochem. Ztschr., 1912, xlv, 221.

with its companion alkaloid exhibiting the reverse phenomenon. Numerous familiar clinical experiences have demonstrated the development of "heroinism" in human subjects, so that all analogy with codein fails in this direction. A case has been described in which a daily dose of 2.8 gm. was tolerated. Experimental studies on animals show that an increased tolerance is speedily developed. In dogs, for example, the narcotic effect which may persist for thirty hours or more with an incipient dose of 25 mg. of heroin has been seen to disappear in two hours after five injections of the drug. The explanation of the increased tolerance for morphin has been much debated. One may conceive of a heightened capacity of the organism to destroy such organic compounds as one possibility; and an increased immunity of the body cells, vague though the understanding of this mechanism must be at present, remains as an alternative explanation. Faust has defended the first of these views in the case of morphin; but the fact that toxic doses of the alkaloid have been found in "immunized" animals tends to render such a theory untenable. In the case of heroin it appears that with growing tolerance for the drug it is destroyed in increasing proportion in the body; for after a time heroin can no longer be detected in either the feces or the urine under conditions of dosage in which it is readily detected earlier in the course of its repeated administration.

THE SUGAR-CONTENT OF THE BLOOD

In the study of the abnormalities of sugar-formation and utilization in the body the estimation of the sugar-content of the blood has recently come to take its place in experimental work side by side with the observations on the "overflow" of sugar through the kidneys. Indeed, the level of the sugar-supply in the circulation has in some ways become a better index of the mobilization of carbohydrate in the organism than any other determinable factor. A rise in the sugar-content of the blood — hyperglycemia — usually betrays itself, as in diabetes, by an elimination of the surplus carbohydrate in the urine. Poverty of the blood in sugar, on the other hand, cannot be detected in any such indirect way. Blood analysis alone will disclose this condition. It has commonly been believed that the circulating sugar, the physiologic importance of which as a form of transport of energy-furnishing material is universally recognized, is to be found solely in the fluid portion of the blood. Concordant observations by a number of competent investigators,[1] however, have made it certain that the blood-sugar is present not only in the plasma, but in the corpuscles as well. In fact, it now appears that the sugar-content of the corpuscles is as a rule equivalent to that of the circulating fluid in which they are suspended. These findings raise the question whether or not the sugar-content of the corpuscles is subject to the variations commonly found in the total blood incident to pathologic or experimental influences which affect the latter — whether or not, for example, the corpuscles in diabetic blood also become richer in sugar. The correct answer to this query should throw light on the interchange of sugar between corpuscles and plasma. Does the sugar enter into the formed elements of the blood by a simple physical process of diffusion? If so, there should be a parallelism in the sugar content of the two factors. It is conceivable, nevertheless, that the corpuscles exercise a chemical influence on their contents so that the sugar of these cellular masses is regulated as to quantity and disposition quite independently of the soluble carbohydrate in the environmental medium. Recent experiments by Professor Höber[2] in Kiel have shown the latter to be the case. In varied types of glycemia the sugar has not been found to be comparably distributed between plasma and corpuscles. The most likely explanation for the present is that the blood-cells exercise a regulatory influence on the sugar within them, determining the entrance or exit of the carbohydrate in response to local factors which still await elucidation.

1. Compare Lepine and Boulud: Compt. rend. Acad. d. sc., 1905, p. 140. Rona, P., and Michaelis, L.: Biochem. Ztschr., 1909, xvi, 60. Hollinger: ibid., 1909, xvii, 1. Frank, E.: Ztschr. f. physiol. Chem., 1910, lxx, 129. Other investigators also have published the results of comparable observations.

2. Höber, R.: Ueber die Vertheilung des Blutzuckers auf Körperchen und Plasma, Biochem. Ztschr., 1912, xlv, 207.

EPINEPHRIN FROM THE WHALE

America is a land of large ventures. We have become used to hearing of enterprises conducted on a magnificent scale, and the ideas which are suggested in an industrial way by the word "enormous" are at times found creeping into the modest domain of science. Now we are hearing of investigations of the ductless glands carried out on whales[1] — animals truly affording superb advantages in point of size. Their adrenal glands, for example, each weigh considerably more than a pound, thus being about five hundred times larger than those from sheep and fifty times larger than the glands from cattle. Structurally the adrenals of the whale resemble those of other mammals, as might be expected. The yield of epinephrin is proportional to that hitherto obtained from other animals, so that as much as 1.2 gm. of the typical active principle has been isolated from a single whale adrenal gland. This is, indeed, an American record.

1. Weidlein, E. R.: Epinephrin from the Whale, Jour. Indust. and Engineer. Chem., 1912, iv, 636.

THE CHRISTMAS RED CROSS FILM

Three years ago the Edison Company prepared a special film of a story designed to interest and educate the public in tuberculosis. This film was prepared with the cooperation and advice of the National Association for the Study and Prevention of Tuberculosis. It was released for use in the moving picture theaters of the country a short time before the Christmas season. Many of those interested in the tuberculosis campaign doubted the effectiveness of such a method of publicity, while many persons interested in the moving picture business were skeptical as to whether their patrons would take an interest in a film with so apparent an educational and philanthropic object. Much to the satisfaction of all concerned, however, the film proved exceedingly popular, and was greatly in demand. Each year since, the Edison Company has prepared a film showing some phase of the tuberculosis campaign in a way to arouse

both interest and enthusiasm for the work of the prevention of tuberculosis. This year the Red Cross story is entitled "Hope." It tells of a man who does not believe that tuberculosis exists in his county, and who therefore refuses to help in the campaign for its suppression. The girl to whom he is betrothed contracts the disease and goes to a New York hospital for treatment because there is no provision in her own town for proper treatment. This arouses the hitherto indifferent business man to the gravity of the situation, with the result that the town builds and equips a tuberculosis sanatorium. The lesson of the moving picture film is important; the stimulation of the public to interest and increased knowledge in the disease is much more so.

THE CAMMIDGE REACTION IN THE URINE

Recently we took occasion to question the value of the Cammidge reaction, which has enjoyed considerable vogue as a functional test for disease of the pancreas. The assumed usefulness of this procedure appears to have become so firmly implanted in the minds of many clinicians, especially the surgeons who are less inclined to exercise a severe critique in matters of chemical import, that a further warning may not be amiss. It will be recalled that the reaction is due to the presence in the urine of some unknown substance which yields, on hydrolysis by acid, a compound furnishing a characteristic osazone with phenylhydrazin. It was first described in 1904 and has already been the subject of a voluminous literature.[1] In confirmation of what we have earlier stated Dr. Mayesima of the surgical clinic at the Imperial Japanese University in Kyoto has noted that several substances, such as pentose compounds and glycuronic acid, may be responsible for a positive reaction, the latter being especially concerned in the usual success of the test. There is no uniformity in the character of the crystalline osazones obtained. Therefore the Cammidge reaction is devoid of diagnostic significance for pancreatic disease. It is unfortunate that so promising a reaction must be discarded; but in this respect the test has merely suffered the fate of some of its predecessors. Trustworthy functional tests are among the rarities of chemical clinical diagnosis.

WHAT'S WRONG?

That champion of the nostrum interests, the *Medical Standard*, discusses editorially in its December issue the subject of "patent medicines." It commences:

> Many people are laboring under the impression that the patent-medicine business is being destroyed, thanks to the efforts of *Collier's Weekly*, the *Ladies' Home Journal* and THE JOURNAL of the American Medical Association.

But, continues our contemporary, this is not the case; "on the contrary, this business is really increasing." Then it quotes figures from a recent Census Bureau bulletin to prove its contention. From these figures, it reaches this conclusion:

> For every $1,000 paid the doctor, the people pay about $1,500 for "patents." Instead of abusing the druggists or the people who make these more or less "popular" medicines it may be well enough to ask why the people prefer this stuff to our services. Possibly there is something wrong with *us*.

The premises in the case are wrong. While the amount of "patent medicines" *manufactured* in this country during recent years may have increased, the amount *consumed* by the people of the United States has, to a wonderful degree, diminished. Of this, there is not a particle of doubt. Lessened home consumption has driven the American "patent-medicine" manufacturer to seek foreign markets — and with success. As a result, the American "patent medicine" has become an evil abroad, especially in Great Britain and its colonies. While we disagree with the *Medical Standard* on the essential points in its editorial, its closing sentence contains some truth. There *is* something wrong with us — the medical profession. That "something" we believe to be the pernicious habit of prescribing proprietary mixtures, for the public is awaking to the fact that there is very little difference between the secret or semisecret "ethical proprietary" prescribed by the physician and the secret or semisecret "patent medicine" bought over the counter. A further "something" that is "wrong with us" is our easy-going tolerance as a profession, making it commercially profitable for such publications as the *Medical Standard* to exist; for the proprietary evil stands and falls with those medical journals of which the *Medical Standard* is a type. As long as the medical profession will tolerate so-called medical journals owned by commercial interests, operated purely for commercial purposes, whose ethics are those of the counting-house and whose owners have no interest in the medical profession aside from the dollars that they may get from it, just so long will the proprietary evil flourish.

AGRICULTURE AND PUBLIC HEALTH

The educational value of the bulletins issued by the Department of Agriculture has been repeatedly commented on and commended. A list recently received from the Department of Agriculture contains the names of the new publications issued during a single month. The list shows the manifold activities of the department and its intimate contact with the daily lives and needs of our farming population. Among the pamphlets listed in the monthly announcement are advance reports of field operations of the Bureau of Soils. Separate pamphlets contain reports of soil surveys of Jackson County, Ala., Windham County, Conn., Lowndes County, Miss., and Laclede County, Mo. Among the new bulletins are pamphlets on "The Manufacture of Butter For Storage," "Feeding Beef Cattle in Alabama," "The Cowpea Weevil," "Forest Fires, Their Causes, Extent and Effects," "The Weed Factor in the Cultivation of Corn," etc. Circulars on "Chicken Fat," "Hints to Poultry Raisers," "Directions for Constructing Vats and Dipping Cattle to Destroy Ticks," "Insects Injurious to Mushrooms," "Hog Raising in the South," "Cockroaches and Clothes-Moths," all containing the observations and conclusions of experts on these various subjects, are printed by the department and can be had for a few cents by any one interested. The variety of topics covered by the various bureaus and divisions of

1. This is compiled in a paper by Mayesima, J.: Ueber den Wert und das Wesen der Cammidgeschen Reaktion bei Pankreaserkrankungen, Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1912, xxv, 403.

this department is almost bewildering. No one complains that the government is exceeding its functions or that the preparation and distribution of these pamphlets in any way interfere with religious or civil liberty. Yet the scientific facts on which these pamphlets are based are exactly the same as those which form the foundation of our present knowledge of disease. Chemistry is responsible for our knowledge of the human body and the way in which it works. The same chemistry is the basis of soil analysis and modern methods of fertilizing. Bacteriology, which gives the farmer information regarding cheese, fermentation and the diseases of animal and plant life, is the source of our knowledge regarding preventable diseases of man. If the federal government can analyze the soil of Jackson County, Ala., and issue a report on the conditions which it finds, why can it not inspect the physical condition of the citizens of Jackson County and report on the avoidable diseases which prevail there and the best means of preventing them? If the government can publish a report on the bacteriology of cheddar cheese, why can it not inform the people regarding the bacteriology of typhoid fever or cerebrospinal meningitis? If the preparation of a bulletin on forest fires is a proper government function, why is not a bulletin on epidemics of diphtheria, their causes, extent and prevention also a legitimate activity of the government? Ignorant or prejudiced obstructionists cannot obscure the issue by talking about "schools of medicine" and "personal liberty." There are no "schools" in the domain of science. The dissemination of increased knowledge has always made men free and has never interfered with their liberty.

I HAVE GIVEN YOU MANY VALUABLE PRESENTS IN THE PAST, UNCLE SAM. BUT THIS ONE IS THE MOST BEAUTIFUL AS WELL AS THE MOST VALUABLE PRESENT OF THEM ALL AND YOU CAN HAVE IT IF YOU WILL TAKE IT.
WEALTH
PROSPERITY
RESPECT OF NATIONS
LIBERTY
NATIONAL UNITY
CIVILIZATION
AMERICAN MEDICAL ASSOCIATION CARTOON SERIES.

EDUCATIONAL BULLETINS OF STATE BOARDS OF HEALTH

Bulletins issued by many of the state boards of health are being used more and more for the education and enlightenment of the public rather than for the recording of long tables of statistics and formal reports. In no section is the increased activity of state health authorities more marked than in the South. The bulletins of the state boards of health of three Southern states which recently came in the same mail, are interesting evidence on this point. The November *Bulletin of the Mississippi State Board of Health* contains a copy of the proclamation of Governor Brewer, designating November 20 as a health day, and urging the observance of the program of the state board of health on the part of all citizens. The state board, cooperating with the state department of education and the Mississippi Federation of Women's Clubs, presents a program for use in all of the schools in the state, an outline for a course of study on public health by the women's clubs, and a comprehensive article on medical inspection of schools. The November *Bulletin of the Virginia State Board of Health* contains an announcement of a lecture bureau established by the board to furnish speakers on public health topics for any community in Virginia which desires to hold a public meeting. The announcement opens with the statement, "Settled in its conviction that the education of the people is the surest method of bettering the public health, the board, since its reorganization, has endeavored to place before the citizens of Virginia, in popular form, the tested truths of prevention." In this statement lies the summary of the entire public health movement. The December *Bulletin of the North Carolina State Board of Health* is devoted to the discussion of the liquor problem and public health, and the relation of alcohol to public health problems. An article on "The Attitude of the Medical Profession to the Use of Alcohol"; a friendly talk to boys on the subject "Does it Pay to Drink Whisky?" and an article on "The Relation Between Liquor and the Death-Rate" form the bulk of the pamphlet. These three pamphlets are simply selected at random from the copious supply of excellent material which is constantly being placed in the hands of citizens by many of our state boards of health. This work cannot fail to enlighten and strongly influence public sentiment, which must ultimately crystallize in better legislation.

Medical News

ALABAMA

New Hospitals.—Watson Infirmary, Decatur, has been opened by Drs. W. H. Watson and Joseph Greer.——At a meeting of Anniston physicians December 1, the Anniston Hospital Association was formed with Dr. A. N. Steele as president and Dr. T. J. Brothers, secretary. The company has rented a building on Marvin Hill for temporary use. The institution will be opened to receive patients this month.

Medical Staff for Y. M. C. A.—The physical department of the Mobile Young Men's Christian Association has secured agreements from the following eleven physicians of Mobile to serve as members of the staff and to deliver from time to time, during the winter, lectures on matters pertaining to health: Drs. P. O. Chaudron, P. J. Howard, C. A. Mohr, T. H.

Frazer, R. C. Jones, W. C. Gordon, A. E. Maumenee, A. W. Metcalf, F. M. Inge, S. F. Hale and M. T. Ganes.

ILLINOIS

Personal.—Dr. Frank H. Jenks, Rockford, reported seriously ill, is now said to be improving and about to go home.——Dr. E. W. Oliver has been elected secretary of the Peoria Health Service League.——Dr. H. L. Howell, Bloomington, was operated on at the Brokaw Hospital, December 6, for appendicitis.

County Districted for Medical Purposes.—President McCormick of the Cook County Board has arranged to have the county divided into districts, to each of which a physician is to be assigned. A committee of seven, with Mr. Sherman C. Kingsley as chairman, was appointed to take charge and make recommendations.

Illinois' Neglect of Epileptics.—A special committee of fifty, made up of physicians, social workers and others, which has been investigating for several months the condition of epileptics in the state, urges strenuously in its report that the general assembly appropriate sufficient funds to buy about 2,000 acres of unsettled ground suitable for light farming and gardening, where at least 2,000 epileptics might be cared for. Efforts in other states have shown that epileptics improve in health where they can be employed out-of-doors at light work and kept on a carefully selected diet and under scientific care. About 10 per cent. of such patients have been completely cured and the other 90 per cent. have been rendered at least partially self-supporting and have thus ceased to be an economic burden to their homes and communities. Massachusetts, Ohio, New York, New Jersey, Kansas, Connecticut, Texas, Indiana and Virginia all have established epileptic colonies and Illinois thus far has been lagging far behind. A bill is to be introduced providing for such a colony.

Chicago

Quiet Fire in Hospital.—A fire in the Monroe Street Hospital, December 9, did considerable damage, but caused no panic on account of the care taken by the firemen to work silently.

Medical History Society.—At the meeting of the Society of Medical History of Chicago, December 12, Dr. Jesse S. Myer, St. Louis, gave an illustrated lecture on "Dr. William Beaumont."

Benefit for Lynde Hospital.—Friends of Lynde Hospital have arranged a benefit concert to be given at the Blackstone Theater, December 27. Lynde Hospital was formerly the medical department of Gads-Hill Settlement and is in charge of Dr. Katharine B. Rich.

New Hospital Opened.—The South Shore Hospital at Eightieth Street and Luella Avenue, recently opened, is a three-story brick building with accommodation for forty ward patients in addition to a number of private rooms and is located on a site which has a frontage of 600 feet. Drs. Axel F. V. Werelius and Andrew V. Dahlberg are respectively surgeon and physician in charge.

Personal.—Dr. P. J. H. Farrell was operated on for appendicitis December 15, and is reported to be doing well.——Dr. Robert H. Rea has succeeded Dr. Frederick B. Clark as superintendent of the Chicago State Hospital, Dunning.——Dr. Otto F. Warning has been appointed a member of the Board of Education.——Dr. J. N. Thorpe was seriously injured in a collision between his automobile and two street cars, December 9.——Dr. Roy H. Cox, ambulance physician at the Chicago Avenue Police Station, injured his knee in a fall while making an emergency call, December 7.

INDIANA

Personal.—Dr. Roy V. Hannell, Lafayette, has been elected coroner of Tippecanoe County.—Dr. Charles A. Underwood has resigned as health officer of Danville.——Dr. Harry M. Lamberson, Connersville, has been elected coroner of Fayette County and Dr. O. P. M. Ford a member of the health board of Connersville.

Favors State Commission on Preventable Diseases.—The Commercial Club of Indiana, at a meeting December 11, passed resolutions favoring the establishment of a state commission to study the extent of preventable diseases which are said to cost the people of the state not less than $20,000,000 a year, and to make a report with recommendations to the general assembly.

Public Health Week.—Public Health Week was held in Frankfort, beginning December 10. A health exhibit was made in the Carnegie Library and lectures illustrated by moving pictures were given at frequent intervals. The entire proceedings were in charge of Dr. C. A. Zinn, county health officer, Dr. Benson A. Ruddell, health officer of Frankfort, and the county and city superintendents of schools.

Epileptics in Indiana.—The annual report of the Board of State Charities shows an increase of 111 epileptics sent to the state institutions during the past year. There are now 957 epileptics in public institutions in the state, of whom 543 are men and boys and 414 women and girls. Of these, 50 per cent. are classed as feeble-minded and 38 per cent. as insane. Only 12 per cent. have no marked mental deficiency.

Epidemic Diseases.—Dr. R. C. Mackey, health officer of Hobart, on account of the prevalence of scarlet fever, ordered the public and parochial schools and theaters of the town closed for a week, and requested the suspension of worship at all public places and Sunday schools, December 1.——The small-pox situation at Jasonville is said to be under control, almost all of the cards have been taken down, schools have been opened and public meetings are no longer interdicted.

New Laws.—The committee on tuberculosis of the Indiana State Medical Society has prepared a law to be introduced during the next legislature to quarantine all people suffering from tuberculosis. Public health authorities will be given sufficient legal rights to enforce the law. The State Board of Health has had a public hygiene bill written which will be introduced in the legislature at the request of the Travelers' Protective Association. It provides for fine or imprisonment for the proprietor of any public building, such as hotels, cafes, boarding houses, etc., that is maintained in an unsanitary condition. This bill defines what are unsanitary and unhealthy conditions. Other bills have been prepared providing

1. For a civil service for county health officers.
2. For the removal of the pathologic laboratories of the state from the state house.
3. For empowering the state board to pass on all school-house plans.
4. For the establishment of a department of sanitary engineering.
5. For the enlargement of the capacity of the State Pasteur Institute.
6. For the enlargement of the executive offices of the state board at the state house.
7. For the cooperation with other states in work on occupational diseases, bad housing, etc.
8. For the control and eradication of cattle tuberculosis.
9. For the restriction of the use of cocain to physicians and dentists.
10. For the prohibiting of fraudulent advertising of medicinal preparations intended to be used for cure of diseases of man or animals.

IOWA

Small-Pox.—About thirty families of Ponca are in quarantine because of the prevalence of small-pox, which, as is often the case, was at first taken for chicken-pox.

Personal.—Dr. W. O. Smouse, Des Moines, has started for Germany.——Dr. W. H. Newlon, Fort Madison, has gone abroad.——Dr. Charles Ryan, Des Moines, who was operated on for appendicitis at Lakeside Hospital, Cleveland, November 25, is reported to be doing well.——Dr. F. J. Will has resigned as local surgeon to the Chicago and Northwestern System, at Des Moines and has been succeeded by Drs. O. J. Fay and A. C. Page.——Drs. G. B. Little and Bertha McDavitt, Burlington, were thrown from the automobile in which they were riding and painfully injured.——Drs. W. L. Bierring, William Pearson and Erwin Schenk have been appointed as an advisory medical committee to the school board of Des Moines.——Dr. J. C. Powers, Hampton, who is under treatment in a hospital in Chicago for an infected wound of the hand, is reported to be improving.

KENTUCKY

New Officers.—Henderson County Medical Society at Henderson, December 10: president, Dr. R. H. Moss; secretary-treasurer, Dr. P. Ligon.

Explosion in Sanatorium.—A boiler exploded in the laundry and kitchen building of the Hazlewood Sanatorium near Taylor Boulevard, Louisville, November 25, and the building was burned to the ground. No one was injured and it was not necessary to remove the patients from the institution.

Personal.—Dr. John G. Cecil has resigned as a member of the executive committee of the medical department of the University of Louisville, and has been succeeded by Dr. J. Garland Sherrill. The committee is now composed of Drs. W. E. Grant, J. B. Marvin, Clint Kelly, J. M. Ray, W. H. Wathen and J. M. Bodine, besides the new member.

Scovill's Successor.—The trustees of the State University of Kentucky confirmed the selection of Dr. Joseph H. Kastle for director of the Agricultural Experiment Station and dean of the College of Agriculture. Dr. Kastle was formerly in the

government employ in the Bureau of Animal Industry and had the unanimous endorsement of the entire force of the experiment station for the position of director to succeed Professor Scovill.

Hospital Notes.—Beginning December 1, Speers Hospital, Dayton, will become the annex hospital for the Chesapeake and Ohio Railroad. Heretofore employees of the company who required treatment have been obliged to go to hospitals at Clifton Forge or Huntington, W. Va.——The Martinsville Sanatorium, Louisville, was damaged by fire to the extent of $10,000, October 30.——The new hospital at Paris, Ky., will be ready for occupancy by December 1.——Highland Hospital, the first hospital to be established in the mountain region of Kentucky, has recently been dedicated. The establishment of this hospital is the result of the efforts of Rev. E. O. Guerrant, mountain evangelist.——Drs. J. N. and A. T. McCormack and Lillian H. South have sold St. Joseph's Hospital, Bowling Green, to Dr. T. O. Helm. This includes the franchise, nurses' training school, operating outfit and the entire equipment of the institution.

MARYLAND

New Officers.—Calvert County Medical Society: president, Dr. O. D. Simmons, Bowens; secretary, Dr. John W. Leitsch, Huntingtown.

Hospital Opened.—The Allegheny Hospital of the Sisters of Charity, Cumberland, with accommodation for one hundred patients, was opened for inspection December 9.

Academy Introduces Inspection.—The Academy of Medicine of Cumberland has formally endorsed the recommendations of Governor Goldsborough at the semi-annual meeting of the Medical and Chirurgical Faculty of Maryland, that a state sanitary and a state dairy inspector be appointed, with deputies in each county.

Personal.—Dr. Ralph W. McDowell, Annapolis, was seriously injured in Philadelphia, November 29, in a collision between the taxicab in which he was riding and a trolley car.——Dr. William P. E. Wyse, Pikesville, has been awarded a verdict for $2,000 on account of injuries sustained by him two years ago in a collision between automobiles.

Baltimore

New Officers.—University of Maryland Medical Society, December 10: president, Dr. Nathan Winslow; secretary, Dr. A. L. Fehsenfeld.

Measles on Steamer.—The North German Lloyd Steamship *Main* arrived at Baltimore, December 7, with thirty-seven cases of measles and twenty-three suspects.

Sanitary Equipment Adopted by Railroad.—The Baltimore and Ohio System has equipped its passenger trains and stations and lavatories with sanitary paper roll towels. It has also abolished the public drinking-glass, replacing it with individual cup service.

Personal.—Dr. John J. Rennington, who was severely injured in a fall from a street car, December 9, has returned home.——Dr. George C. Wegefarth was operated on for appendicitis December 12, at the Church Home and Infirmary.——Drs. Anna D. Abercrombie and John Travers have been appointed medical inspectors under the child labor law.——The following have been appointed as the advisory board by the Home for the Widows and Orphans: Cardinal Gibbons, Hon. Henry Stockbridge and Drs. Lewellys F. Barker, Hugh H. Young, Hon. W. T. Finney, Randolph Winslow, Charles O'Donovan, T. C. Gilchrist, D. W. Cathell and J. G. Jeffers.

MASSACHUSETTS

New Officers.—Somerville Medical Society, December 5: president, Dr. E. D. Pillsbury; secretary-treasurer, Dr. Allen H. Blake, both reelected.

Personal.—Dr. James A. Honeij, Cambridge, has been appointed by the State Board of Charities assistant physician at the Leper Colony, Penikes Island. He will have the use of the laboratory of the Harvard Medical School and will make a study of the fifteen cases of leprosy now on the island.——Dr. Franz L. F. E. Pfaff has resigned as professor of pharmacology and therapeutics in Harvard Medical School and will take a vacation of two years.——Dr. Louis M. Spear has been appointed physician-in-chief of the Peter Bent Brigham Hospital, Dr. Edward P. Richardson, surgeon, and Dr. Charles F. Painter, orthopedic surgeon.

Hospital Notes.—At the annual meeting of the Boston Floating Hospital, November 7, Dr. Samuel H. Durgin was elected a trustee and Dr. Henry C. Marble, resident physician.——Ground was broken recently for the new St. Elizabeth's Hospital, Brighton. The ceremonies were in charge of Cardinal O'Connell, president of the hospital corporation.——A fire in the store room of the Emerson Hospital, Forest Hills, destroyed many valuable medical books.——The new buildings of the Talitha Cumi Maternity Home, Forest Hills, were formally opened, October 29, by Bishop Lawrence. The home is under the management of Drs. J. M. Hastings and E. M. Plummer. Dr. Elizabeth Ritter, Brookline, is resident physician and Dr. William F. Wesselhoeft, consulting physician.——The Pittsfield Antituberculosis Association has awarded the contract for building a new central house on the Roberts Camp at West Pittsfield, to cost $15,000.——At the rummage sale for the benefit of the Boston Babies' Hospital, October 24, more than $4,300 was realized for the institution.——The Women's Charity Hospital Club has voted to change the name of its hospital to the Massachusetts Women's Hospital.——The executive committee of the Burbank Hospital, Fitchburg, has been authorized to build a tuberculosis hospital at a cost of about $28,000.——The new Melrose Hospital was damaged by fire recently to the extent of $1,500.——The new Marlboro General Hospital was opened without formal exercises, December 6. The building, which has cost $57,000, is of concrete construction and consists of an administration building and two wards. The institution will accommodate about thirty-six patients.

MINNESOTA

Personal.—Dr. J. Frank Corbett, city bacteriologist of Minneapolis, has resigned.——Dr. Lattan A. Crandall has been reelected president of the Minneapolis Child Welfare Association.

Norwegian Hospital.—The Hoyme Hospital Association has purchased a site for the institution at Twenty-Sixth Avenue West and Fourth Street, Duluth, on which it proposes to erect a hospital to cost about $50,000. Dr. H. N. Hovde is vice-president of the association and Drs. J. M. O. Tufty and O. E. Heimark are directors.

Free Eye Dispensary.—The University of Minnesota Free Dispensary has created an optical department which will be under the charge of Dr. Frank C. Todd of the medical faculty.

New Officers.—Southwestern Minnesota Medical Association at Luverne, November 12: president, Dr. L. L. Sogge, Windom; secretary-treasurer, Dr. Emil King, Fulda. Windom was selected as the next place of meeting.——Southern Minnesota Medical Association at Mankato, December 4: president, Dr. A. B. Stewart, Owatonna; secretary, Dr. W. T. Adams, Elgin.——Midway Medical Association met for organization December 9, Dr. Frederick E. Leavitt, St. Paul, acting as chairman.

MISSOURI

District Health Society Organized.—Representatives of the health departments of the twenty-six counties and cities of western Missouri designated as the seventh district, met in Springfield, November 21, and organized a district society electing Dr. J. M. Billings, Lebanon, president, and Dr. W. M. West, Monett, secretary.

Personal.—Dr. Harry Czarlinsky, Kansas City, has been elected coroner of Jackson County.—Dr. Geoorge P. Pipkin, Kansas City, underwent operation for appendicitis at the Kansas City General Hospital, November 7.——Dr. W. L. Gist, city physician of Kansas City, has been placed in charge of the ambulance corps, National Guard of Missouri, with the rank of captain.

Tuberculosis Hospital Districts.—Buchanan County Tuberculosis Hospital District is the first to be organized on the law passed by the last legislature. The governor has appointed the following as commissioners for the district: Colonel James H. McCord, Mr. George Schneider, Mr. Eugene Westheimer, Dr. Daniel Morton, St. Joseph, and Colonel J. A. Corby. The establishment of the district assures care for those suffering from tuberculosis as soon as the board can get the necessary agencies at work.

St. Louis

Diphtheria.—The local board of health reports at least four hundred cases of diphtheria in addition to a great number of suspected cases.

New Officers.—St. Louis Medical Society, November 25: president, Dr. Louis H. Behrens; secretary, Dr. Frederick C. E. Kuhlman (reelected).

Personal.—Dr. D. F. Rice was slightly injured in a collision between the automobile in which he was riding and a trolley car, December 2.——Dr. Louis R. Padberg has been elected coroner of St. Louis, vice Dr. Jules Baron.

Diphtheria Epidemic.—The discovery of twenty-three cases of diphtheria in the industrial school has caused the isolation of the patients in the contagion hospital, and the prophylactic administration of antitoxin to 318 children.

NEW YORK

Tuberculosis Hospital for Saratoga County.—The application of the supervisors of Saratoga County for permission to establish a hospital for the treatment of tuberculosis in the town of Providence, Saratoga County, has been approved by the State Commissioner of Health.

Personal.—Dr. William T. Pearson has been elected superintendent of the Glenridge Sanatorium to succeed himself.——Dr. and Mrs. George H. Dill, Fort Plain, have started for California.——Dr. Maurice J. Lewi has resigned as secretary of the State Board of Medical Examiners and Dr. Otto Von Huffman of New York City has been appointed in his place.

International Water Pollution.—The November bulletin of the State Department of Health calls attention to the fact that a question has arisen with reference to the extent of the jurisdiction under the treaty between the United States and Canada, whether the International Joint Commission may properly consider pollution of waters on either side of the international boundary line, which by diffusion or otherwise, do not extend over and pollute the waters on the other side of the boundary line. When this question of jurisdiction is settled, the State Commissioner of Health will appear before the commission by invitation at a hearing to be held in Washington and will explain the attitude of the State Department of Health with regard to the pollution of streams, and will present a report showing the action of the state on all applications for permission to discharge sewage into boundary waters between New York and Canada.

New York City

Personal.—Dr. Edgar G. Janeway, who died Feb. 10, 1911, left an estate appraised at $481,500.——Dr. M. Rabinovitz, adjunct gynecologist to the Beth Israel Hospital, has been appointed visiting gynecologist to Sydenham Hospital.——Richard Lake, F.R.C.S., lectured before the Section on Otology of the New York Academy of Medicine December 14 on "The Clinical and Therapeutical Aspects of Vertigo."

To Raise Money for Bronx Hospital.—An industrial exhibit is being held in the Grand Central Palace for the benefit of the Bronx Hospital, to which the admission fee is one dollar. Each ticket entitles the bearer to one dollar's worth of goods. It is said that $500,000 worth of goods will be distributed. The new Bronx Hospital, which is to supplant the present institution, will cost about $350,000 and will contain over 200 free beds. The dispensary will be equipped to treat about 100,000 patients a year.

Letchworth Village Contracts Ready to be Let.—Letchworth Village, an institution for the segregation of epileptics and feeble-minded for which the state has acquired a large tract of land at Thiells near Haverstraw, is to be begun in the near future. The plans for the institution have been completed and the group of buildings to be constructed consists of four dormitories, an attendants' home, a dining-hall, a power plant and a storehouse. At the last session of the legislature $457,000 was appropriated for this purpose. Ultimately the village will consist of six groups of buildings, each consisting of eight dormitories, an industrial building, and a school house. Each group of buildings will have accommodations for 500 inmates.

Endowment for Work Among Defectives.—The new Clearing House for Defectives which was established recently in connection with the Department of Charities has been doing its work with the aid of volunteer surgeons associated with Dr. Max G. Schlapp. Commissioner Drummond presented the needs of this work at a recent meeting of the Woman's Municipal League and as a result an endowment sufficient to secure its permanency and to enable it to open all necessary records and make investigations has been secured through the generosity of Mrs. W. K. Vanderbilt, Mrs. August Belmont, Mrs. Hewitt and Mrs. Seligman. An important part of the work will be the creation for the first time in this country of a systematic record of all defectives known to be at large.

NORTH CAROLINA

Work of the Hookworm Commission.—The hookworm commission, operating under the direction of Dr. J. A. Ferrell, assistant secretary of the State Board of Health, is composed of six physicians, eight microscopists and one stenographer. Up to December 1, 148,993 examinations had been made in the state and 98,730 persons had been treated. The Rockefeller Commission spent in this work $20,000 and the State Board of Health $6,000, while the sixty counties in which the commission has operated have contributed approximately $15,000 to provide accommodation for the hookworm laboratories, advertise the work that is being done and pay for the medicines used. Usually from five to eight dispensaries were established in each county and the work of examinations and treatments occupied about six weeks. Public health pamphlets are distributed and it is believed a great impetus to general sanitation will be the result of the work. Continued observations verify the earlier suggestion of Dr. Stiles that the disease is found much more frequently in sandy districts than in clay subsoil. For instance, the examinations of the suspects in Richmond County show 38 per cent. infection as contrasted with 17 per cent. in Buncombe County.

OHIO

Hospital Notes.—Memorial Hospital, Elyria, will hereafter receive annually an appropriation of $6,000 from the city instead of $5,000, as heretofore.——St. Elizabeth's Hospital, Youngstown, opened to receive patients December 8.

Hoover in Des Moines.—Dr. C. F. Hoover, Cleveland, was the guest of honor of the Des Moines (Ia.) Pathologic Society at its November 15 meeting and delivered an address on "Respiratory Ventilation of the Lungs in Health and Disease."

Small-Pox.—The illness of ten patients in the State Hospital, Toledo, and of five employees, which had been diagnosed as chicken-pox, has been pronounced small-pox and the patients and 100 other patients and employees who had been exposed are in quarantine.——Seven cases of small-pox are reported in Zanesville and a theater and all moving-picture shows have been ordered closed.

Personal.—Dr. J. W. Piper, Bethesda, who has been seriously ill with pneumonia, is reported to be improving.——Dr. C. H. Bailey, East Liverpool, has been appointed tuberculosis inspector with jurisdiction over all potteries in East Liverpool, Wellsville, Chester and Newell.——Dr. J. W. Costolo, superintendent of the District Tuberculosis Hospital, Lima, has resigned and will resume practice in Sidney.——Dr. J. W. McKemy, Dayton, has been elected coroner of Montgomery County.——Dr. G. O. Maskey, Upper Sandusky, has been appointed local surgeon of the Columbus, Hocking Valley and Toledo Railroad.——Dr. W. M. Bucher, Cleveland, has been appointed superintendent of the new tuberculosis hospital, Warrensville, Cleveland, which is to be opened January 1.——Dr. R. H. Grube, Xenia, has been elected dean and Dr. P. R. Madden, Xenia, secretary of the Ohio Soldiers' and Sailors' Orphans' Home.——Dr. A. Delaplane, formerly physician at the State Penitentiary, Columbus, has been appointed assistant medical examiner of the Pennsylvania System between Chicago and Pittsburgh, with headquarters at Fort Wayne, Ind.——Dr. H. T. Phillips, Athens, coroner of Athens County, has been elected probate judge of the county and will take office, February 9, next.

WEST VIRGINIA

Society Honors Governor-Elect.—The Medical Society of McDowell County, at its last annual session, December 11, elected Dr. J. Howard Anderson, Marytown, president, and Dr. S. D. Hatfield, Iaeger, secretary. The society adopted resolutions appreciating the confidence reposed by the people of the state in Dr. H. D. Hatfield, Eckman, a member of the society, in electing him governor—the first time a member of the medical profession in the state has been so honored; congratulating Dr. Hatfield on the distinction conferred on him and on the reflected glory brought on the medical profession of the state and his county society, and pledging him hearty support during his administration, with special reference to state-wide hygiene and sanitation.

GENERAL

Prize Offered for Work on Diabetes.—The local medical society at Carlsbad has offered $1,000 (5,000 crowns) for the best work or works on "Treatment of Diabetes Mellitus with Special Reference to Balneotherapy." Competition is open to physicians of all countries, and any language may be used. All communications should be addressed to the Vereinigung Karlsbader Aertze, Carlsbad, Austria. The jury consists of von Jaksch of Prague, Lüthje of Kiel, Ortner of Vienna, Schmidt of Innsbruck and Dr. Ganz. Articles must be received by Dec. 31, 1913.

American Society for Physicians' Study Travels.—Philadelphia has taken the lead in the organization of a society with this name, patterned after the Deutsches Zentralkomitee für ärztliche Studienreisen. This German organization, it will be

remembered, sent a party throughout the United States, in connection with a visit to the International Congress on Hygiene and Demography at Washington. It was the fourteenth annual tour of the kind. The party and its trip were described in THE JOURNAL, August 24, page 662, August 31, page 731, September 7, page 812, and in subsequent issues. The success of the trip and the interest taken in the entertainment of the members by members of the medical profession in the various cities visited have awakened a desire for a similar organization in the United States. At a subscription dinner in Philadelphia, December 7, a committee was appointed to organize the American Society for Physicians' Study Travels. Dr. James M. Anders was elected chairman. Speaking for his committee, Dr. Anders asks all American physicians interested in this proposition to correspond with him at 1605 Walnut Street, Philadelphia. Clinics can be arranged in advance, lectures prepared and visits made to the best hospitals and health resorts, with the assurance of a hearty welcome from the leading medical men of the localities visited. Dr. Anders seeks to have this society represent the American medical profession with all the medical centers represented in its membership. So many physicians go abroad each year that the prospect looks bright for a successful organization in this country, and Dr. Anders will be glad to hear from all who are able to consider the matter at all seriously. In this connection it should be stated that tours are being arranged in connection with the International Medical Congress at London, August, 1913, by Dr. Richard Kovacs, New York City, and by Dr. C. W. Fassett, St. Joseph, Mo.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Dec. 7, 1912.

International Congress of Medicine

The International Congress of Medicine which is to be held in London next August will be one of the largest international gatherings held in this country for many years. It is expected that at least five thousand physicians will be present as delegates. Of those about two thousand will probably come from Great Britain and other English-speaking countries; about one thousand from Germany, one thousand from France and one thousand from other countries. For its largest meetings the congress will assemble in Albert Hall. There are twenty-six sections and subsections, most of which will meet daily; the meeting-places must therefore necessarily be somewhat scattered in various parts of London. The forthcoming congress will probably surpass all its forerunners in numbers. It will certainly show a marked advance on the last meeting in London in 1881, the seventh meeting of the congress, when the delegates numbered about three thousand. The present is the seventeenth meeting. The increasing specialization of medicine is illustrated by the fact that the sections for the discussion of particular branches of medicine have grown from fifteen in 1881 to twenty-six at the forthcoming meeting. The congress of 1881 over which Sir James Paget presided was notable for the presence of Huxley, who spoke on the subject of heredity, and, of Pasteur. While the program of the coming congress does not contain any names so great as these, nearly every distinguished man in British medicine is among the officers, presidents of the sections, or contributors of papers. The congress will be presided over by Sir Thomas Barlow, president of the Royal College of Physicians. The general addresses to the full congress in the Albert Hall will be given by Professor Chauffard of Paris, on medicine; Geheimrat Professor Paul Ehrlich of Frankfurt, on pathology; Mr. John Burns, M.P., on public health; Prof. Harvey Cushing of Harvard University, on surgery, and Mr. W. Bateson, F.R.S., on heredity. The proceedings in the sections will be conducted mainly in English, French, German and Italian; but, with the assistance of interpreters, the delegates may speak in any language. Some of the subjects to be discussed are of more than professional interest, such as the psychology of crime, which is to be considered at a joint meeting of the forensic medicine and psychiatry sections. The causes of epidemic diseases and the effects of dust in producing diseases of the lungs are to be considered in the section of hygiene. The forensic medicine section will discuss the causes and prevention of suicide, and the tropical medicine section the subjects of plague and beriberi. To promote imperial feeling, the British committee has appointed on the various committees representatives of the profession in the oversea dominions. When it was first proposed to hold the meeting in London the invitation was given on behalf of members of the profession in Great Britain only. Many representatives of Canada, Australasia and India have now been nominated, and the whole empire will now play the part of host to the congress. A fund is being raised to meet the expenses of the meeting, which are expected to amount to $40,000.

The National Insurance Act: Decision of the British Medical Association Still in the Balance

Though there are only six weeks before the medical benefits of the national insurance act come into force, the British Medical Association has not yet given its decision whether to work the act or not. The following concessions were made by the Chancellor of the Exchequer, Mr. Lloyd George, in his final interview with the deputation appointed by the British Medical Association. The first point raised was as to the scope of the services which the insured person might demand. The reply is "The insured person cannot demand services beyond those which every member of the panel may reasonably be expected to give. The treatment which the practitioner undertakes to give is that which can properly be undertaken by practitioners of ordinary competence and skill." It was pointed out that a physician may have acquired special skill in some branch and be able to perform an operation which no one without special skill could undertake. The insured person cannot require that as part of his medical benefit. To decide whether any disputed case comes within the agreement it is proposed that the local insurance committee (consisting mainly of laymen) shall, if necessary, refer it for decision to a court of reference set up for the purpose by the government. Certain duties, although coming within what will be required as medical benefit, have been distinguished for some time as "extra." Examples are minor operations, setting fractures, night visits, etc. Payment of these extras depends on the method adopted for distributing among the physicians in each area the amount available for that area. Some districts may decide on a capitation payment, each physician receiving so much per head for all risks, whereas others may set aside a portion of the total amount available to provide a pool out of which the fees for extras would be paid. As a deterrent against unreasonable demands the deputation asked that the physicians should be allowed to make a small charge for night and special visits. This was refused as impossible, but it is proposed to meet the point by giving the insurance committees power to fine insured persons, or in the case of repeated offenses to suspend from medical benefit those who make unreasonable demands on the physicians attending them. On the question of mileage for country physicians (mentioned in a previous letter) the government considers the capitation rate offered sufficient, as these physicians are allowed to dispense their own medicines and thus receive the profits which in the case of the city physicians go to the pharmacists. The government, however, recognizes that in some parts of the country exceptionally sparsely populated the physicians would be at a disadvantage. Parliament will therefore be asked to provide a small fund for such areas. Physicians will be required to keep only such records as will furnish information as to the incidence of disease. It is pointed out that no regulations could be framed to exclude the insurance committee from power to consider complaints against a physician and that for the protection of physicians a provision had been inserted in the regulations: a complaint should not be considered by the insurance committee until it had been sifted in private session by a body in which the physicians and the insured would be equally represented. The government has acceded to the request that the medical members of each insurance committee shall constitute not less than one-tenth of the whole.

THE ACTION OF THE BRITISH MEDICAL ASSOCIATION

The report of this final conference with the Chancellor of the Exchequer has been considered by the council and several protracted sittings, one lasting as long as eleven hours, have been held. As stated in previous letters there are two parties on the council, an extreme and a more moderate one. It seems, therefore, that under the circumstances the council could not give any lead to the association. The intention to send with the report of the final interview with the Chancellor a covering letter to the divisions of the association has therefore been abandoned. Meetings of the divisions are about to be held all over the country to determine finally whether the association will work the act or not. To these all physcians, whether members of the association or not, have been invited.

A DISSENTIENT ORGANIZATION

An organization of physicians to work the act has been formed. There has all along been a minority of the profession, consisting largely of men of socialistic views, in favor of the

act. Their number appeared to be very small, but the recent concession of the government has, as anticipated, increased the number of those willing to serve. Moreover, a certain political element exists in the situation. It is quite true that the majority of physicians, whether liberal or conservative, opposed the act on purely professional grounds and some of its most vehement opponents have been prominent liberal supporters of the government. At the same time the conservative press has tried to make as much party capital as possible out of the dissatisfaction of the profession and at the meetings of the association the intensified virulence of those who were opposed to the government on political, as well as professional grounds, was evident. A marked example is the president of the association, Sir James Barr, into whose unmeasured denunciation of the act the political bias so strongly entered that protests have been made by members of the association. On the liberal side there has been little evidence of party feeling entering into the controversy. Dr. Esmonde, an Irish member of Parliament, who was once in general practice, has announced, however, that the government has met the physicians fairly and he has invited communications from those willing to work the act. He claims to have received a large number of responses. In consequence of the Home Rule question the members of the Irish party are strong supporters of the government. While there are no grounds for saying that Dr. Esmonde is not doing what he honestly believes to be in the interests of the profession, one cannot help feeling that the motive of countering the attack made by the conservative party against the act enters into his action. At the eleventh hour there has also been started a new association termed "The National Insurance Practitioners' Association," which has sent a circular to every physician asking if he is willing to serve. This association recognizes the good work which has been done by the British Medical Association in securing better terms from the government, but in consequence of these terms it holds that the undertaking not to work the act except on conditions approved by the British Medical Association is no longer binding. Before issuing this circular they would have waited until the council of the British Medical Association had reported and an opportunity been given them of recording their votes, but a circular sent out to the members of the Westminster provisional medical committee of the association has made this impossible. This circular states that "the number of doctors willing to work the act on any terms must be very few indeed" and that "it is only on matters of detail as to the best method of carrying on a campaign of resistance that differences exist." The founders of the new association say that it is their duty to the public as well as to themselves to take service and that they have formed the new association, not out of any disloyalty to the British Medical Association, but for the protection of their own interests. To say the least, it seems unfortunate that they did not delay their manifesto until the decision of the association has been given. The time for making arrangements for the working of the act, however, is now very short.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Nov. 22, 1912.

The Fight Against the Decrease of Population

A decree has been issued for the formation by the minister of finance, M. Klotz, of an extraparliamentary commission (including several physicians) for the study of national, social and fiscal questions concerning the decrease of population in France, and of seeking the means of remedying the condition. For several years the legislative chambers and successive governments have considered the problem, but up to the present nothing has been accomplished except half-way measures, because the fiscal side of the question has been neglected.

The Lowest Pulmonary Capacity Compatible With Life

At one of the recent meetings of the Académie des Sciences, Drs. Léon Bernard, A. Le Play of Paris and Charles Mantoux of Cannes reported the outcome of their researches on the lowest pulmonary capacity compatible with life. They employed a special technic suggested by the treatment of pulmonary tuberculosis by means of artificial pneumothorax, following the procedure of Forlanini. The principle was to immobilize the lungs in such a way that their movement was restricted to the lowest limit compatible with the maintenance of life. This immobilization was accomplished by means of nitrogen, the resorption of which is negligible. This gas is injected at first into the right pleura to the point of complete immobilization, and then into the left pleura to a certain limit where the experiment stops. Then skiagraphic and fluoroscopic examinations are made. By these means different factors can be determined, such as the quantity of gas injected and the volume and weight of the lungs, which permits by a simple calculation a determination of the lowest capacity of the lungs compatible with life. This has been found to be about one-sixth of the total lung capacity.

The Struggle Against Alcohol

As I have told in a preceding letter, the Chamber of Deputies by a vote of 361 to 155 postponed the passing of the law voted by the senate to limit the number of liquor licenses (THE JOURNAL, March 16, 1912, p. 794). This vote has caused much disappointment. The Académie de médecine and a large number of medical societies have protested against the postponement of this reform, the most urgent of all. The Ligue nationale contre l'alcoolisme, presided over by Professor Debove, formerly dean of the Faculté de médecine of Paris, has issued an appeal to French women to initiate one of these movements against which political assemblies can fight only in vain. To combat the distillery, that formidable financial trust supported by 400,000 tavern-keepers, the league invites French women *en masse* to sign a petition which cannot fail to impress the Chamber of Deputies.

Prizes Awarded to Finlay and Agramonte

Among the prizes offered for competition by the Académie des Sciences the most important is the Bréant prize (100,000 francs, $20,000) for the cure of Asiatic cholera. Naturally this prize has not been awarded this year, but from the income from the foundation the academy has awarded a prize of $500 (2,500 francs) to Dr. Carlos J. Finlay of Havana and another of equal value to Dr. A. Agramonte of Havana for their work on the rôle of the mosquito in the propagation of yellow fever.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Nov. 22, 1912.

Personal

Professor Gumprecht of Weimar has been appointed to deliver a brief course of lectures on social and economic questions of interest to physicians.

On November 20, Professor Stieda of Königsberg celebrated his fiftieth anniversary as dozent.

Professor Czerny of Strasburg has accepted the call as successor of Heubner.

Practice of Foreign Physicians in German Watering Places

In spite of the fact that persons who are not licensed in Germany are not allowed to call themselves physicians or to use any similar title, for many years foreign physicians, mostly Russian, have been carrying on an extensive practice in Germany, particularly among their own countrymen in Berlin and the cosmopolitan watering-places. On motion of the medical Bezirksverein at Kissingen, the Bavarian medical chambers have taken a stand against this unauthorized competition and asked the Bavarian government to use its influence to forbid the carrying on of practice in any form by physicians who are not licensed in Germany.

The Robert Koch Tuberculosis Foundation

The Robert Koch foundation for the elimination of tuberculosis, which was established five years ago in memory of the discovery of the tubercle bacillus, with a capital fund of 1,250,000 marks ($312,555), has already expended nearly 100,000 marks ($25,000) for promotion of research on tuberculosis. At its last session, early in November, an allowance of 3,000 marks was granted for studies on vital staining and tuberculosis, and 1,500 marks for investigations of tubercle bacilli in the blood-stream.

Expenses of the Prussian Universities

The ordinary expenses for the Prussian universities have increased since 1868 from about 4,000,000 ($1,000,000) to 21,000,000 marks ($5,250,000) in 1911. Corresponding to this, there is also to be noted a marked increase in the number of students. The average registry in the Prussian universities has increased from about 7,500 in 1868-69 to about 28,000 students in 1911-12. Hence, the number of students had increased by about 280 per cent., whereas the expenses have increased by 435 per cent. In 1868 there were expended for the individual student 536 marks, in 1911, 753 marks. About three-fourths

of the expenses of the universities are covered at present by the government, the remainder coming from the income of the universities, as well as from foundations and other funds.

Quiet at Health Resorts

The German committee for hygienic arrangements in health resorts and watering places discussed at its last session the important theme "Quiet at Health Resorts." The following resolutions were adopted for regulating public traffic: 1. In the construction of street pavements, noise-suppressing reinforcement should be used according to local conditions. (Wood, asphalt, macadam; stone pavement is to be avoided as much as possible.) 2. Limitation of the street traffic in such a manner as to afford the necessary rest to the guests of health resorts. (Prohibition of fast driving of automobiles and other vehicles; prohibition of unnecessary use of horns and whistles and the cracking of whips; limitation of the use of bells and whistles on local railroads and steamship traffic. Control of the traffic of freight wagons. Practicable limitation of all kinds of noise which disturbs the quiet, with some exceptions which must be approved by the police (such as moving, etc.) 4. Prohibition of noisy plays of children and of noisy calls by street peddlers. 5. Restriction of keeping noisy animals (fowls, cats, dogs, etc.) 6. Permission of only the most necessary bell-ringing; elimination of the striking apparatus of public clocks. 7. Limitation of the construction of buildings to the slack season at the resorts.

For the houses the following resolutions were passed: 1. The greatest possible deadening of walls and ceilings in the lodging-houses. 2. The kitchens, water closets, bathrooms, rooms with machinery and rooms for amusement must be arranged so that those living in the house may not be annoyed by the noise produced in such rooms. 3. Establishment of certain hours for the beating of rugs, furniture and bedding. 4. Restriction of noisy plays of children in the courts, halls and gardens. 5. Training the house-servants to perform all their duties with the least possible noise. 6. The greatest possible limitation of playing on musical instruments and singing with open windows and in buildings which are not sound-proof.

Population of the German Empire According to Age

The age relations of the population of Germany, according to the census of 1910, may be summed up in the following table:

	Males	Females	Total
Population in 1910.....	32,040,166	32,885,827	64,925,993
15 years old and under..	.....	.....	22,107,930 *
Born before 1851.....	2,271,366	2,842,838	5,114,204
Aged 15 to 60.....	18,660,908	19,042,951	..... †

* 34.1 per cent. † 58 per cent.

Marriages

BEULAH B. RICHMOND, M.D., Skelton, W. Va., to Miss Florence Josephine Ballard of Long Beach, Cal., November 20.

JOHN A. FROELICH, M.D., Princeton, Wis., to Miss Emma Williams of Palmyra, Wis., at Milwaukee, November 27.

JOHN CHARLES NORTON, M.D., Hagerstown, Md., to Miss Ruth Cleveland Atkinson of Baltimore, December 3.

HERMAN H. TUTTLE, M.D., Springfield, Ill., to Miss May L. Suddick of Joliet, Ill., at Ottawa, Ill., December 5.

HENRY HOPSON WILCOX, M.D., Springfield, Mass., to Miss Emily Jane Wagner of Brooklyn, December 5.

GEORGE H. SCOTT, M.D., U. S. Army, to Miss Margaret Eleanore Pillow, at Butler, Pa., December 5.

THOMAS B. KERN, M.D., Allentown, Pa., to Miss Frances Middleton of Philadelphia, November 28.

JOHN M. DICKSON, M.D., to Miss Florence L. Williamson, both of Cambridge, Mass., recently.

ESMOND AUSTIN CHILDS, Geneva, O., to Miss Mary Summers, at Toronto, Ont., November 26.

ELMER LEE COX, M.D., Salem, Ia., to Miss Winnifred Childs of Ottumwa, Ia., November 21.

C. CLAYTON KOONS, M.D., to Mrs. Grace Roberts, both of Larned, Kan., November 27.

JOSEPH B. UNSELL, M.D., to Miss Willella Stark, both of Louisiana, Mo., December 4.

CAMDEN B. EDDY, M.D., to Miss Mary L. Harris, both of Louisville, November 28.

CALVIN EDGAR BROWN, M.D., to Miss Leila Haerther, both of Chicago, December 6.

Deaths

Henry Moore, M.D. Kentucky School of Medicine, Louisville, 1864; a veteran of the Civil War; for many years superintendent of the Midland Railroad Company; formerly a member of the board of trustees of the Indiana State School for the Deaf; chairman of the original commission appointed by the Indiana legislature to investigate the practicability of establishing a State Tuberculosis Hospital, and later chairman of the board of trustees of the State Tuberculosis Hospital, Rockville, Ind.; state organizer of the National Red Cross Antituberculosis Campaign; died in his office in the State House, Indianapolis, December 2, from cerebral hemorrhage, aged 72.

George Clinton Crandall, M.D. University of Michigan, Ann Arbor, 1890; a member of the American Medical Association; professor of medicine in the St. Louis University; formerly a member of the medical staff of the Northwestern Michigan State Hospital, Traverse City, Mich.; president of the consulting staff of the St. Louis City Hospital; consulting physician to St. Ann's Lying-In Hospital, and medical director of the St. Louis Society for the Prevention and Relief of Tuberculosis; died at his home in St. Louis, December 5, from nephritis, aged 47.

Rem Lefferts Disbrow, M.D. College of Physicians and Surgeons, New York City, 1862; a member of the Medical Society of New Jersey; first president of Ocean County Medical Society; surgeon of the Fourteenth New York Volunteer Infantry during the Civil War; for several years a president and director of local banking and trust companies; a member of the board of freeholders and county board of election; died at his home in Tom's River, November 11, from senile debility, aged 77.

Nathan Gideon Ward, M.D. Jefferson Medical College, 1893; a member of the American Medical Association; president of the Philadelphia Chemical Association; clinical professor of laryngology and rhinology in Temple University, Philadelphia; aurist and laryngologist to St. Agnes Hospital; ophthalmologist to Charity Hospital and also a member of the staff of the Samaritan and Garretson hospitals, Philadelphia; died at the home of his parents in Elizabeth City, N. C., December 3, aged 47.

William B. Crum, M.D. Howard University, Washington, D. C., 1880; a prominent colored practitioner of Charleston, S. C.; once surgeon in the National Guard of the state, and visiting physician to the Charleston Negro Hospital; appointed collector of the Port of Charleston in 1902, and minister-resident to Liberia and consul-general at Monrovia in 1909; died in Charleston, December 7, from fever contracted at his post of duty in West Africa, aged 53.

Ellsworth Eliot, M.D. College of Physicians and Surgeons, New York City, 1852; trustee and registrar of his alma mater for several years; a member of the American Medical Association and New York Academy of Medicine, and president of the Medical Society of the County of New York in 1872; also president of the Society for the Relief of Widows and Orphans of Medical Men; died at his home in New York City, December 9, from bronchitis, aged 85.

Elizabeth Simpson Mitchell, M.D. Queens University, Kingston, Ont., 1888; L. R. C. S., L. R. C. P. Edinburgh, L. F. P. S. Glasgow, L. S. A. London, 1888; the first woman to receive a license to practice in the Province of Quebec; a practitioner of Montreal until 1909 when she moved to Bournemouth, England; died in Nashua, N. H., November 30, aged 48.

Cornelius P. Meredith, M.D. Pulte Medical College, Cincinnati, 1881; of Louisville, Ky.; formerly president of the Southwestern Homeopathic Medical College and at one time a member of the Kentucky State Board of Health; a Confederate veteran; died in the home of his son in Louisville, December 2, from uremia, aged 73.

Charles Henry Thompson, M.D. College of Physicians and Surgeons, New York City, 1868; a member of the Medical Society of New Jersey; mayor of Belmar, N. J., from 1891 to 1893; for two terms a member of the borough commission of Ocean Beach; died at his home in Belmar, December 3, from disease of the intestines, aged 69.

Henry Sayre Orme, M.D. New York University, New York City, 1861; a member of the American Medical Association; of Los Angeles; emeritus professor of hygiene and state medicine in the University of Southern California; a pioneer practitioner of Los Angeles; died in the Angelus Hospital, November 29, aged 76.

George Edwin Jones, M.D. Medical College of Ohio, Cincinnati, 1859; a member of the American Medical Association; formerly of Evansville, Ind.; acting assistant surgeon, U. S. Navy, during the Civil War; died at his winter home in St. Augustine, Fla., November 29, from cerebral hemorrhage, aged 77.

John Young, M.D. University of Michigan, Ann Arbor, 1874; a member of the American Medical Association; a pioneer practitioner of Presque Isle County, Michigan, and for more than twenty years chairman of the county board of supervisors; died at his home in Onaway, December 3, from heart disease, aged 66.

Albert E. Johnson, M.D. George Washington University, Washington, D. C., 1869; formerly a member of the American Medical Association; a member of the Medical Society of the District of Columbia; at one time city physician of Washington; died at his home in that city, about November 5, aged 72.

John Rogers Merrill, M.D. College of Physicians and Surgeons, New York City, 1886; a member of the Medical Society of New Jersey; a practitioner of Paterson, N. J., until October last, when he moved to Pasadena, Cal., on account of his health; died at his home in that place, December 1, aged 51.

Charles Emory Rogers, M.D. Bellevue Hospital Medical College, 1880; a member of the American Medical Association; local surgeon of the Milwaukee System at Montevideo, Minn., and founder of the Montevideo Hospital; died suddenly at his home, December 3, from angina pectoris, aged 62.

Edgar D. York (license, Kansas, years of practice, 1901); a practitioner of Rawlins County since 1881; representative in the legislature in 1887-1888 and 1891-1892; a veteran of the Civil War; first mayor of Atwood, Kan.; died in the State Hospital, Ingleside, Neb., November 5, aged 75.

Lee C. George, M.D. Tulane University, New Orleans, 1896; of Monroe, La.; a member of the American Medical Association; local surgeon for the Queen and Crescent System; died in the Gulf Coast Health Resort, Biloxi, Miss., December 3, from nephritis, aged 43.

John Richardson Hoffman, M.D. Jefferson Medical College, 1868; a member of the Medical Association of the State of Alabama; surgeon in the Confederate service throughout the Civil War; died at his home near Athens, December 3, from senile debility, aged 82.

Isaac N. Cohen, M.D. Friedrich Wilhelm University, Berlin, Germany, 1872; a surgeon in the German Army until 1890; of La Crosse, Wis.; died in the La Crosse Hospital, December 1, from acute peritonitis, for which operation was performed without avail, aged 62.

Arthur MacCabe, M.D. Baltimore University, 1897; Queens University, Kingston, Ont., 1903; a member of the American Medical Association; formerly chairman of the Board of Health of Gloucester, Mass.; died at his home in that city, November 12, aged 45.

William J. Kennedy, M.D. Minnesota College of Physicians and Surgeons, Minneapolis, 1903; formerly local surgeon at Enderlin, N. Dak., for the Minneapolis, St. Paul and Sault Ste. Marie Railway; died at his home in Olga, N. Dak., recently, aged 35.

Daniel Stanislaus Harkins, M.D. Harvard Medical School, 1888; a member of the Massachusetts Medical Society; for two terms a member of the Boston School Board and quarantine physician; died at his home in Boston, December 8, aged 48.

Harry C. Guillot, M.D. Detroit College of Medicine, 1891; for five terms mayor of Pontiac, Mich.; formerly a member of the staff of Eastern Michigan State Hospital in that city; died at his home December 3, from valvular heart disease, aged 45.

Simon S. Wilcox (license, years of practice, Illinois, 1877); a veteran of the Civil War; for half a century a practitioner of Hutton Township, Vermilion County; died in the Soldiers' Home, Danville, Ill., November 27, from senile debility, aged 87.

William D. Humphrey, M.D. Northwestern University Medical School, Chicago, 1899; of Virginia, Ill.; who was injured five weeks ago in a runaway accident, sustaining a fracture of the skull; died in a hospital in Jacksonville, December 5, aged 48.

Robert A. Gunn, M.D. University of Buffalo, N. Y., 1866; of New York City; died in Bellevue Hospital, December 7, from the effects of morphin, aged 68.

William K. Flatt, M.D. Hahnemann Medical College, Chicago, 1869; died at his home in St. Paul, Minn., December 5, from cerebral hemorrhage, aged 82.

Francis Duffy, M.D. University of Virginia, Charlottesville, 1868; College of Physicians and Surgeons, New York City, 1875; a member of the Medical Society of the State of North Carolina; died at his home in Newbern, N. C., November 5.

J. Hartridge Kennedy, M.D. Medical College of Georgia, Augusta, 1892; was found dead at his home in Lew, Ga., December 2, from the effects of chloroform, believed to have been self-administered, with suicidal intent, aged about 43.

John Thomas Jennings, M.D. University of Louisville, Ky., 1891; died at his home in Ramona, Okla., November 29, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent, while despondent, aged 40.

Benjamin F. Hamell, M.D. University of Pennsylvania, Philadelphia, 1863; of Oakland, Cal.; was found dead in his sleeping-car berth, on an eastbound Southern Pacific train at Ogden, Utah, December 2, from heart disease, aged about 70.

William H. Haynes, M.D. Medical College of Ohio, Cincinnati, 1889; of Aurora, Ind.; a member of the Indiana State Medical Association; died at the home of his sister in Wilmington, Ind., December 4, from pneumonia, aged 53.

Alexander Bailey, M.D. University of Louisville, Ky., 1881; for several years superintendent of the State Feeble-Minded Institute, Frankfort, Ky.; died at his home near Frankfort, November 24, from pneumonia, aged 62.

Albert P. Harrison, M.D. College of Physicians and Surgeons, Kansas City, Kan., 1902; of Coldwater, Kan.; a member of the Kansas Medical Society; died in the Wichita Hospital, November 21, from heart disease, aged 39.

Henry Gastineau, M.D. Central College of Physicians and Surgeons, Indianapolis, 1895; of Howesville, Ind.; at one time treasurer of Greene County; died at the home of his son in Howesville, December 3, aged 68.

Joseph McCann, M.D. Starling Medical College, Columbus, Ohio, 1854; died at his home in Delaware, Ohio, December 1, from cerebral hemorrhage, following a fall from a ladder, eleven days before, aged 88.

Edward F. Schwedler, M.D. University of Leipzig, Germany, 1848; for many years a member of the visiting staff of the German Hospital, New York City; died at his home, December 7, from pneumonia, aged 90.

Samuel J. Tilden Ritter, M.D. Eclectic Medical Institute, Cincinnati, 1897; a director of the Bethlehem (Pa.) Trust Company; died at his home in Bethlehem, December 4, from pneumonia, aged 36.

William M. Cooley, M.D. Hahnemann Medical College, Chicago, 1868; a pioneer practitioner and clergyman of Dickinson County, Kan.; died at his home in Herington, December 3, aged about 78.

William P. Townsend (license, Texas, Fifth Judicial District Board, 1891); a member of the State Medical Association of Texas; was found dead in a well at his home in Mattinburg, December 2.

Monroe L. Vansant, M.D. Hahnemann Medical College, Philadelphia, 1857; a physician and dentist of Philadelphia; died at his home, September 22, from senile debility, aged 90.

David Alexander Kittle, M.D., Washington University, St. Louis, 1853; since 1865 a practitioner of Kansas City, Mo.; died at his home, December 1, from senile debility, aged 92.

Charles Billon Gratiot, M.D. Missouri Medical College, St. Louis, 1849; one of the oldest practitioners of St. Louis; died at his home, December 11, from senile debility, aged 84.

Lemuel S. Lawson, M.D. University of Maryland, Baltimore, 1867; for forty-three years a practitioner of Dallastown, Pa.; died at his home, December 5, from uremia, aged 75.

Andrew James Boman, (license, Michigan, years of practice, 1900); for nearly thirty years a practitioner of Alpena; died at his home in that city, November 30, aged 76.

Russell H. Sparks, M.D. Medical College of Ohio, Cincinnati, 1871; of Stamping Ground, Ky.; died recently at the home of his sister in Pleasureville, aged 80.

William E. Moon, M.D. Keokuk (Iowa) Medical College, 1892; died at his home in Traverse City, Mich., December 9, from carcinoma of the stomach, aged 49.

William Minser, M.D Cincinnati College of Medicine and Surgery, 1882; formerly of Versailles, Ohio; died suddenly in Greenville, Ohio, December 1, aged 52.

George Mays (license, Texas, 1907), a practitioner of Houston since 1869; died at the home of his daughter in that city, December 2, aged 65.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

ADVANCED MEDICAL SCIENCE INSTITUTE, A NOTORIOUS QUACK CONCERN, RUN OUT OF KENTUCKY

About Sept. 20, 1912, a quack concern styling itself variously the "Advanced Medical Science Institute," "Radio-Electric Company," "Witman Medical Company" and "Delish-Etts Manufacturing Company," with an alleged capital stock for each of these concerns of from $25,000 to $2,000,000, and claiming to be a part of the State Land Company of Oklahoma, with branches in a dozen or more states, began operations in one of the principal office buildings in Louisville. Flaming advertisements in the newspapers announced that it had expert diagnosticians and scientific apparatus too costly and accurate for the medical profession to possess or appreciate, and in a few days reported cures so numerous and miraculous as to attract a large clientele. The State Board of Health put the machinery of the law in operation and its special agents, male and female, reported in a few days that X. W. Witman, the head of the concern and its expert diagnostician, was not a physician, and that the only medical man in it was one who had failed as a practitioner and was employed in an attempt to legalize its practice at a salary of $15 a week. The scientific apparatus—a fake worthy of the operators—consisted of a cheap fluoroscope. Witman, pretending to look through the body into a blind box, would declare that he saw handfuls of gall-stones, and stomach, lung and kidney lesions, and thus found it easy to relieve the unfortunates of any surplus cash they had or could obtain.

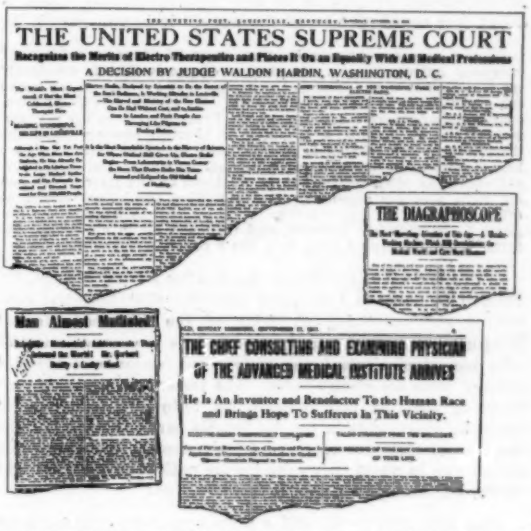
Twenty indictments were secured at the next sitting of the grand jury (most of them not for violations of the medical law, it should be observed) and warrants were taken out from day to day as evidence could be secured. One woman, it is alleged, furnished $3,000 to finance the concern and its defense, able attorneys were employed by it, a virulent crusade was begun in the press against the State Board of Health, the State Medical Association and the American Medical Association, and women were employed in broad and systematic efforts to blackmail and intimidate leading members of the profession, especially those connected with the prosecution or summoned as witnesses. All of this was of no avail. The attorney of the board, to whom chief credit is due for the freedom of Kentucky from open quackery for the last twenty years, had prepared the cases with such care and ability that the woman in the concern who had been used in the efforts to discredit members of the profession, turned state's evidence.

ADMIT GUILT

Nine of the indictments were against the Delish-Etts Manufacturing Company, Dr. George W. Foreman, X. W. Witman, W. M. Foreman and Frances Holst for failure to file a certificate. One was against the Advanced Medical Science Institute and the persons named for unlawfully practicing medicine, and nine against the same institute and persons for failing to file a certificate. The failure to file a certificate refers to the engaging in business under an assumed name as in the cases of the Delish-Etts Manufacturing Company and the Advanced Medical Science Institute, without having filed a certificate giving the names, places and residences of all persons actually interested in and conducting the business, and the nature of the business. There were eighteen counts of this sort. The other two were for practicing medicine illegally. On the eighteen charges, by agreement, Witman was fined $25 each and $50 each on the two latter, making, together with costs, nearly $700, which Witman paid. Dr. Foreman pleaded guilty to one charge of doing business under an assumed name, the Advanced Medical Science Institute, and a fine of $50 was imposed, which is included in the above sum. Frances Holst filed a statement in court as to her connection with the business and agreed to cease having any future connection with such business. The cases against her and W. M. Foreman were dismissed. Witman admitted that the business had been illegally conducted, that the offices would be immediately closed and that he would not in future engage in similar business in the state of Kentucky. This is all a matter of record in the criminal courts of that state. The concern closed its offices within an hour and notices were at once issued for Dr. George W. Foreman to appear before the State Board of Health at its next meeting to show cause why his certificate to practice medicine should not be revoked "for gross unprofessional and dishonorable conduct of a character likely to deceive and defraud the public." Foreman graduated from the Kentucky School of Medicine in 1902, his name being given as George Forman. He was licensed in Kentucky in 1903 under the name of George W. Foreman.

NEWSPAPER RESPONSIBILITY

This, for the time being at least, ends the career of one of the crudest and most brazen examples of advertising quackery


THE UNITED STATES SUPREME COURT

Recognizes the Merits of Electro Therapeutics and Places It On an Equality With All Medical Professions

A DECISION BY JUDGE WALDON HARDIN, WASHINGTON, D. C.

THE DIAGRAPHOSCOPE

Man Almost Mutilated!

THE CHIEF CONSULTING AND EXAMINING PHYSICIAN OF THE ADVANCED MEDICAL INSTITUTE ARRIVES

He Is An Inventor and Benefactor To the Human Race and Brings Hope To Sufferers In This Vicinity.

Photographic reproduction (much reduced) of portions of some of the advertisements put out by the Advanced Medical Science Institute fraud.

which the daily papers of Louisville aided and abetted by printing large reading notice advertisements with flaming headlines. It is a matter of astonishment that in this day and age reputable newspapers should lend themselves to such gross forms of swindling. In effect they make themselves partners in a crude confidence game in which their own patrons are not only swindled out of their money but are doubtless, many of them, irreparably harmed by the treatment, or by the lack of the proper treatment they require. Many of the statements made in these advertisements are so extravagant and absurd as to be laughable and really should not deceive any layman of average intelligence. Yet these quacks must have done a large business in Louisville, else they could not have paid for the extensive advertising space purchased by them in these newspapers.

A few examples of statements from these advertisements are given below.

The following appeared in the Louisville *Times* October 17:

"MAN ALMOST MUTILATED! SCIENTIFIC MECHANICAL ACHIEVEMENTS THAT ASTOUND THE WORLD! MR. HERBERT BEATTY A LUCKY MAN!

"After an automobile accident which all but killed him outright, Mr. Herbert Beatty's life was saved by mechanical means which has

astounded the civilized world. The following is what was done for Mr. Beatty at the Advanced Medical Science Institution, 708 Realty Building: A glass eye, an artificial nose, a silver plate in his skull and a false lining in his stomach was inserted, and yet Mr. Beatty lives and enjoys perfect health. In answer to the question when interviewed by a reporter the doctor explained: 'Almost anything can be done nowadays by electricity when in the hands of a scientist. The lining of Mr. Beatty's stomach was deposited there by a powerful current which is perfectly harmless and painless; bismuth is used, as that metal can be removed after a cure is effected as readily as when placed there by simply reversing the polarity of the current. When this lining is placed in a diseased stomach or bladder it coats the diseased mucous lining protecting the diseased parts from the matter which would constantly irritate the parts and prevent a cure without this protection. . . . This great discovery is a boon to those sufferers from stomach trouble and intestinal canal, or any irritation of the kidneys caused by stricture or ulceration of any kind. The multiple machine, the only one in the U. S. of America, was applied and one application dissolved that troublesome malady in less than three minutes' time.'"

Equally interesting with the "multiple machine," described above, which cured a "stricture or ulceration" in three minutes, is the "Diagraphoscope" which is stated in the Louisville *Herald* of September 20, to be "The Most Marvelous Invention of This Age—A Wonder-Working Machine Which Will Revolutionize the Medical World and Cure Most Diseases." In the absurd description of the "diagraphoscope" which is called "the eighth wonder of the world," it is said that it is:

"Doing more for diseases than an ocean of drugs or a forest of surgeons' knives. . . . It gives a diagnosis that is absolutely true—not guess-work. This is accomplished by showing to the naked eye every organ in the patient's body. By means of this phenomenal machine's powers one can see the heart in action, the rise and fall of the diaphragm, a spoonful of bismuth passing down the throat. Any constriction is as visible as the light of day, as are kidney stones, or in fact any abnormal condition. It will show gall-stones so often believed to be cirrhosis of the liver. You can see right past the appendix, often observing the kidney stones so often mistaken for appendicitis. . . . Any enlargement of the joints is immediately revealed, and taking it all in all, makes the formerly much-vaunted *x*-ray look like a toy."

In another reading notice in the Sunday *Herald* of Sept. 22, 1912, it is announced in great headlines that the chief consulting and examining physician of the Advanced Medical Institute has arrived. He is described as the "great scientist who has revolutionized the medical profession and startled science" with his electro-radio. The important announcement is made that he had brought his auto and had engaged beautiful apartments in the fashionable part of town. But the most wonderful part of this advertisement is the description of the way in which they examine the patient in the Advanced Medical Science Institute. It is as follows:

"The first thing we do with a patient who insists he has heart trouble is to take a drop of blood from his finger. My celebrated bacteriologist examines that blood with his microscope, which magnifies 4,000 times, and separates every blood-corpuscle, the red from the white. We measure them, count them, watch the activity in life, the color of them and their shape. We then place the instrument, imported from London, under the patient's arm. It tests the blood-pressure through the heart. The urine is analyzed by electricity. The heart is looked at. It can be seen pulsating as plainly as looking through an open window. We look through the body to see if there are any abnormal conditions. That tells the story. In nine cases out of ten we find the patient suffering from an effect, and not the supposed cause."

The brazen assurance of these quacks is illustrated still further in an advertisement in one of the Louisville daily papers in which is quoted almost completely an article by a prominent surgeon in one of the popular magazines concerning medical ethics. The surgeon's name is signed to the article, and the article is used in an attempt to show why regular physicians are not worthy of confidence and that faith should be placed in the electro-radio treatment of these quacks.

MORE LYING

A still more flagrant example of the sheer nerve of these swindlers is found in a half-page advertisement in the Louisville *Evening Post*, Oct. 12, 1912, in which it is said in headlines extending across the whole page that "The United States Supreme Court Recognizes the Merits of Electrotherapeutics and Places It On an Equality with All Medical Professions. A Decision by Judge Waldon Hardin, Washington, D. C." Then it pretends to quote from and comment on the Collins decision by the United States Supreme Court. It quotes Judge Hardin as having delivered himself of the following brilliantly expressed thought presumably from the Collins case: "The allopathic doctors dug their own pits in the Collins case. They never realized they had hold of a live wire until it was too late."

There is no Judge Waldon Hardin on the bench of the United States Supreme Court or in the district courts. The Collins case was a case from Texas involving the reregistration of an osteopath who had a license under a previous medical act, and had nothing to do with electrotherapeutics. The decision of the Supreme Court in that case sustained the new Texas law requiring the osteopath to register anew. This serves only to illustrate the brazen effrontery of this quack concern which swindled the people of Louisville and vicinity probably out of many thousands of dollars in a few months. The fine of about $700 amounted really only to a cheap license fee for these swindlers and they can afford to go somewhere else and do the same thing, which they probably will. While the people of Louisville are to be congratulated on having been saved from further exploitation by this bald form of quackery through the activity of the profession and the state board of health when they once got in action, yet they have no reason to feel proud of their neighbors and friends, the proprietors of the newspapers who published the advertisements of these fake concerns and thus made possible their swindling operations.

Correspondence

Failure of Christian Scientists to Differentiate Dropsy and Pregnancy

To the Editor:—Apropos of the wonderful cure (?) of Mabel Hite by the Christian Scientists as reported in The Journal (Nov. 23, 1912, p. 1896), I think that the report of a case in which I was called last month will be of interest. I was engaged by a man to attend his wife during her confinement, which was expected to occur in a few weeks. He said that they were Christian Scientists and gave me to understand that I would be called when labor began. In answer to my questions, he stated that his wife was feeling well and that all of the functions were normal. In due time I was hurriedly called, as the woman was said to be in labor. When I arrived at the house I was greatly shocked to find the patient sitting up but in a dying condition. On each side was a sister "healer" assuring her that she was just nervous, when in fact she was almost pulseless, lips blue, cold to knees and elbows and gasping for breath.

As soon as I saw the conditions I had counsel called. We found that the patient was not pregnant, but had general dropsy. She died within two hours. A post-mortem was refused, so we are unable to say what caused the dropsy. Oh, Religion, what fearful things are done in thy name!

B. N. Stevens, M.D., Chillicothe, Mo.

Danger of Infection from the Cigar-Clipper

To the Editor:—An incident which recently occurred forcibly called to mind the danger from the use of certain public articles, in this case the cigar-clipper. I was standing in a restaurant talking to a friend when a man came in who, as I knew, was afflicted with syphilis of rather recent inoculation. He had mucous patches in his mouth at the time. He bought a cigar and put it in his mouth. He then remembered that he had forgotten to clip the end of the cigar, so he took the cigar from his mouth and clipped it in the clipper standing near. The next man after him might easily contract the disease. It is needless to say that I have never since cut off the end of a cigar in a public cigar-clipper.

Frank C. Walch, M.D., Mukwonago, Wis.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PROTECTION OF OTHER MEMBERS OF THE FAMILY FROM INFECTIOUS COLDS

To the Editor:—I am interested in the problem of protecting other members of the family in cases of influenza and infectious colds. It is often impossible to isolate the patient. I am having fairly good success with partial isolation, together with gargles, formaldehyd and eucalyptus inhalation, etc. I think it would be of interest not only to me but to many others who have the same problem if you would outline the best methods of protecting the well from the infection. E. P.

ANSWER.—The problem of protecting persons against infectious colds is quite similar to that of protecting them against the other infectious diseases. Isolation is a measure of chief importance. It is very doubtful if the infections which give rise to the symptoms of a cold are spread to any extent by means of fomites. The infecting agent appears to be the living patient, frequently a convalescent one, who still throws out from the mouth a fine spray laden with infectious germs. This is more particularly the case in loud speaking, in which it has been shown that such germs can be carried to a distance of several feet. When complete isolation is impracticable the patient can limit his infectiveness by the use of some form of sputum-receiver and by special care not to soil with nasal or oral secretions his own hands or clothing, and not to come too close to other persons. His dishes, table napkins and handkerchiefs might well be kept carefully separate so that no one else will use or handle them until time to wash them. One need have little fear of the infectious matter that might possibly persist through a thorough washing, but boiling would be a sure disinfectant.

Ordinary cleanliness on the part of the other members of the household, especially frequent washing of hands, will probably be a sufficient means of protection in place of any extensive means of disinfection. An important measure in preventing the reception of such germs is to secure the healthy condition of the mucous membrane of the nose and pharynx. The fact should be remembered that the nasal mucous membrane is affected by conditions in other organs, particularly the skin, the digestive organs and the sexual apparatus. The local treatment of the nasopharynx with antiseptics is probably of slight value, except when there is present some viscid secretion to be removed. Too extensive spraying of the throat may even be prejudicial by removing a layer of protecting mucus and leaving the mucous membrane perhaps more accessible to the invasion of pathogenic germs.

BLOOD TRANSFUSION—SALINE SOLUTION—ALYPIN—ARISTOL—BOVININE

To the Editor:—1. What is the simplest practical method of determining whether a donor is suitable for blood transfusion? 2. What strength saline solution would you recommend for intravenous administration? 3. What is Alypin? What is its therapeutic value? 4. What is Aristol? 5. What is Bovinine? M. Y. D.

ANSWER.—1. The donor should be free from disease. If sufficient time is allowable it would be well to perform the Wassermann test. It is preferable that the donor should be a blood relative, as the blood of strangers is sometimes hemolyzed by the blood of the recipient. It might be well to determine beforehand whether the blood of the recipient exercises a hemolytic action on the blood of the proposed donor.

2. Sodium chlorid, 0.9 per cent., gives a solution which is isotonic with the blood plasma and hyperosmotic in sodium chlorid. A better solution would be one containing 0.6 per cent. sodium chlorid and 0.3 per cent. other salts, especially sodium bicarbonate. A solution containing 0.7 per cent. sodium chlorid is usually near enough to the molecular concentration of the blood-plasma for ordinary use.

3. See New and Nonofficial Remedies, 1912, p. 27.

4. Aristol is a trade-name for thymol iodid. See New and Nonofficial Remedies, 1912, p. 243.

5. Bovinine is a nostrum claimed to be a preparation from beef blood. It was investigated by the Council on Pharmacy and Chemistry and the results were published in THE JOURNAL, Nov. 20, 1909, p. 1756. The report has also been published in the "Reports of the Council on Pharmacy and Chemistry" for 1909, pp. 137 and 142, and in the "Propaganda for Reform in Proprietary Medicines," p. 28. Bovinine was rejected by the Council.

NEOSALVARSAN IN RHEUMATISM AND ANEMIA

To the Editor:—Please advise me with reference to the use of neosalvarsan in the treatment of rheumatism and anemia.
JAMES ROSS, M.D., Moline, Ill.

ANSWER.—Salvarsan has been used with apparently good results in some cases of pernicious anemia. A similar use of neosalvarsan is reasonable, but we do not know that it has been applied in this way.

DENTAL ANESTHETICS

To the Editor:—What is most effective to prevent pain in the extraction of teeth? S. T.

ANSWER.—The sensibility of the gums can be reduced by rubbing them with a solution of cocain or one of the many proprietary cocain substitutes, so that the prick of the hypodermic needle will not give pain. In some cases a merely psychic influence may be sufficient to secure an almost painless extraction. Rubbing a remedy on the gums might secure this psychic effect in a considerable number of cases.

Local anesthetics and obtundents are agents to produce insensibility to pain in a circumscribed area of tissue. They are used to act at once on nerve-endings in a given locality especially in the extraction of teeth. Local anesthetics are divided into (A) soluble local anesthetics, (B) insoluble local anesthetics and (C) refrigerant local anesthetics.

A. The best known soluble local anesthetic is cocain hydrochlorid. According to Preyer's conception, local anesthesia is produced as follows: Cocain possesses a distinct affinity for the living protoplasm of the nerve cell; it enters with it into a labile union, thus producing local anesthesia, which lasts until its temporary union is broken up by releasing the chemical—not as the original cocain, however, but as an inert compound of a simpler structure. In other words, the living tissues rid themselves of the poison in some unknown manner.

Some of the formulas for local anesthetic solutions of cocain are:

℞	gm. or c.c.		
Cocainae hydrochloridi		32	gr. v
Sodii chloridi		25 or	gr. iv
Aquae destillatae	30		fl. ℥j

M. Sig.: Cocain injection for dental purposes. To each cubic centimeter add 1 drop of epinephrin solution when used (Prins).

Following are two formulas for local obtundents:

℞	gm. or c.c.		
Cocainae hydrochloridi	1		gr. xv
Phenolis liquefacti	4	or	℥j

M. Sig.: Apply the heated solution to hypersensitive dentin (Jenkins).

℞	gm. or c.c.		
Cocain (alkaloid)	1	3	gr. xx
Chloroform	8	or	fl. ℥ij
Ether	30		fl. ℥j

M. Sig.: Apply to the cavity on a small pledget of cotton and evaporate to dryness (Buckley).

Novocain is one of several cocain substitutes (see New and Nonofficial Remedies, 1912, p. 152). It is said to have the same action on the peripheral nerves as cocain, with an equal amount of anesthetic potency. Applied locally, it has no side- or after-effects, and is non-irritating to the soft tissues. A formula commonly used is:

℞	gm. or c.c.		
Novocain		6	gr. x
Sodii chloridi		25 or	gr. iv
Aquae destillatae	30		fl. ℥j

M. Sig.: To each cubic centimeter add 1 drop of epinephrin solution when used (Prins).

B. Among insoluble local anesthetics are comprised a number of synthetic compounds introduced within recent years which possess marked analgesic power when applied in substance on painful mucous membranes or abraded surfaces. Anesthesin, Orthoform-New and Propaesin are illustrations. The following anesthetic mixtures may be used:

℞	gm.		
Anesthesin			
Corn starch	ää	4	or ää ℥j

M. Sig.: Dusting powder (Prinz).

℞	gm.		
Orthoform-New		4	or ℥j
Lanolin		30	℥j

M. f. unguentum. Sig.: Orthoform ointment (Prinz).

C. Refrigerant local anesthetics are local applications which abstract blood from the tissues. They lower the temperature, diminish sensation, and reduce the volume of the parts to which they are applied. When continuously applied in due time they produce definite anesthesia. These freezing agents are restricted to small areas especially around the roots or root of the tooth to be removed. Ether and ethyl chlorid are used for this purpose.

LITERATURE ON INDURATIVE HEADACHE

To the Editor:—Please give me the literature on indurative headache (*musculäre Kopfschmerz* or *cephalée musculaire*).

A. M., ————, Texas.

ANSWER.—Following are some of the articles on the subject:

Reidel: Der Kopfschmerz und seine physikalische Behandlung, *Berl. klin. Wchnschr.*, 1907, xliv, 338.

Kleen: Handbook of Massage, P. Blakiston's Son & Co., Philadelphia, 1892.

Edinger: In Diseases of the Nervous System, translated from Die Deutsche Klinik, Appleton & Co., New York, 1908.

Yawger, N. S.: Indurative Headache, THE JOURNAL, April 24, 1909, p. 1316.

Rose, F.: Headache from Nodules in the Muscles, *Semaine méd.*, Paris, March 29, 1911, xxxi, No. 13; abstr. in THE JOURNAL, May 6, 1911, p. 1365.

Norström, G.: Chronic Headache and Its Treatment by Massage, A. R. Elliott Publishing Company, New York, 1905.

Auerbach, S.: Zum Wesen des sog. Knötchen- oder Schwielenkopfschmerzes, *Deutsch. Ztschr. f. Nervenheilk.*, 1911, xlii, 399.

Auerbach, S.: Der Knötchen- oder Schwielenkopfschmerz und seine Behandlung, *Samml. klin. Vortr.* (Volkmann), 1903, No. 361.

Müller, A.: Der musculäre Kopfschmerz, sein Wesen und seine Behandlung, *Deutsch. Ztschr. f. Nervenheilk.*, 1910, xl, 325.

Müller, A.: Der muskuläre Kopfschmerz, Leipzig, 1911.

Müller, A.: Der Untersuchungsbefund am rheumatisch erkrankten Muskel, *Ztschr. f. klin. Med.*, lxxiv, Nos. 1 and 2.

Auerbach, S.: Der Kopschmerz, seine verschiedenen Formen, ihr Wesen, ihre Erkennung und Behandlung, Julius Springer, Berlin, 1912.

ORYZANIN

To the Editor:—Somewhere recently I saw an article referring to an article by a Japanese investigator on the active principle in rice-polishings, which he had named "Oryzanin." I thought it was in an editorial in THE JOURNAL, but cannot find it. Please refer me to the article, if you did publish it, and also to the original article.

W. L. BEECHER, M.D., Chicago.

ANSWER.—The editorial was published in THE JOURNAL, Sept. 14, 1912, page 883. The original article, Ueber Oryzanin, ein Bestandtheil der Reiskleie und seine physiologische Bedeutung, was published by V. Suzuki, T. Shimamura and S. Odake, in the *Biochemische Zeitschrift*, 1912, xliii, 89.

A REQUEST FOR MATERIAL ON LEUKOCYTIC INCLUSIONS IN SCARLATINAL BLOOD

To the Editor:—In order to arrive at a definite conclusion as soon as possible regarding the diagnostic value of the leukocytic inclusions which have been described in the blood of scarlatinal cases, I would deem it a personal favor if physicians having such patients would send me a few blood-smears, on slides or coverglasses, from every case observed within the next few months, together with a note stating the day of the disease, the existence of eruption, run of temperature and apparent severity of the case.

CHARLES E. SIMON, Baltimore.

1302 Madison Avenue.

CONDENSED ANSWERS

[Summarized here because of general interest or because the questions are asked by other correspondents.]

RUSSO TYPHOID REACTION

Dr. J. W. Crenshaw, Cadiz, Ky.: Described in THE JOURNAL, Aug. 10, 1912, page 465.

FOLIN'S ESTIMATION OF CONSTITUENTS OF URINE

Dr. A. L. Green, Milford, Ill.: See text-books on clinical diagnosis by Simon, Wood or Webster.

RHEUMATISM PHYLACOGEN

Dr. W. W. Pretts, Platteville, Wis.: Discussed in THE JOURNAL, Aug. 10, 1912, page 464.

PREVENTIVE OF VENEREAL INFECTION

Dr. O. A. Grantham, Johnstown, Colo.: The formula and the method used by some army surgeons are given in an original article in THE JOURNAL, April 15, 1911, p. 1098. See also an abstract, Dec. 24, 1910, page 2257.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

A NATIONAL DEPARTMENT OF HEALTH

Last week we commented on the interest which is being taken by the lay press with reference to the national Department of Health and the changed views in regard to it. Another evidence is an article by Dr. John A. Wyeth of New York entitled "Why a National Department of Health is Needed," which appeared in the Sunday edition of a group of daily newspapers. Following are a few paragraphs from Dr. Wyeth's article:

"There is, in the President's cabinet, a Secretary of Agriculture, one of whose duties is to look after the welfare of our domestic animals, but there is no voice in the cabinet to speak out for the welfare of the women and children—and surely no one will gainsay that these are more valuable than our hogs, horses and cows.

"I am not in favor of the Owen bill, for the reason that it is a compromise. The Department of Health should not be a secondary bureau in any other department—nothing but a special department with a Secretary of Health, as a member of the cabinet, should be accepted by the American people and by that powerful organization, the American Medical Association, which, representing 130,000 busy practitioners of medicine in the United States, is working earnestly and effectively in the campaign of education to accomplish this end.

"The question of states' rights is not involved—without interference in any way with the prerogatives of the various state boards, these can be employed in successful cooperation for the general welfare. No single state, or group of states, should be made to bear alone the expense of fighting an epidemic—it is not fair to the state, or to its neighbors who are threatened. Epidemics do not respect interstate boundary lines, and a stream vilely polluted in one community may flow on and on through a dozen other states, carrying its poison to the helpless people who are compelled to use its waters. . . .

"The world was never more under obligations to the self-sacrificing work of the medical profession than now. Its members are giving not only their time and energy and means, but their lives in this warfare against disease and death. The young, the brilliant Ricketts, who discovered the cause and the cure of that fatal endemic, the 'Rocky Mountain fever,' died in Mexico while studying the cause of typhus, himself a victim to this malady. Lazear and Carroll laid down their lives after being bitten by yellow fever mosquitoes in testing their then theory—now no longer a theory but a fact, which their death proved—that this dread epidemic disease was carried from man to man by this insect. With the knowledge thus gained, Dr. Gorgas banished yellow fever from Havana after a century of its presence there. Think of what all this means to life, happiness and to commercial prosperity! . . .

"Turn to another fatal disease, typhoid fever. It is no longer dreaded. In the Spanish-American war our men died like sheep with 'the rot.' Twelve years later an equal number of troops, subjected to the identical conditions of climate and location and time in camp, did not lose a single life, as compared to the thousands that died and were ill in 1898 and 1899 in Florida and at the Chickamauga camp. Medical science had won another great victory and typhoid fever was ranked with the preventable diseases.

"I could extend this list for many columns, but these should suffice to show what progress has been made and is being made, and what can be done to save life and assure health and happiness, provided always that proper authority and power are given to enforce obedience to the requisitions of scientific sanitation. Colonel Gorgas could never have driven yellow fever from Havana without the discipline and power which General Wood lent him. He failed at Panama at first, because red tape hampered him. No sooner had these restrictions been removed in answer to the powerful protest of the American Medical Association than the death-rate began to go down and down until within a year the Canal Zone was fever-free and had become the white man's home.

"What is true of yellow fever and typhoid fever and malarial disease is true of tuberculosis and all the other wide-spread diseases. It is up to the American people to secure the maxi-

mum of health and usefulness for themselves by cooperating with the medical profession in its humane work. It can best be done by a national Department of Health and a Secretary of Health in the President's cabinet."

A RELIGIOUS JOURNAL ON PUBLIC HEALTH

An interesting editorial comment, as showing the growing interest of religious publications in health matters, appears in a recent issue of the *Congregationalist*. Under the heading of "The Public and the Doctors," the editor says:

"The private and individual activity of public-spirited physicians in matters of the common weal has always been a source of strength to the community. But the time has come, we think, for a more corporate activity and sense of duty. Take the marriage question, for example. The public would pay far more attention to the voice of associated doctors and surgeons than they do the words of the clergy. Some of our advanced ministers are claiming the assistance of physicians in determining whether they have a right to bind men and women together in wedded life. It would be well if the physicians could meet this demand by formulating a basis for certificates of fitness for marriage resting on something more than the individual doctor's opinion.

"There are great reforms that bear directly on the prevention of disease and the lowering of the health standard in certain trades and employment of the physically unfit. The question of vocational poisonings, such as the lead poisoning of the painters' and potters' trades and the phosphorus poisoning of the match trade, is one in which we need the voice of that profession which deals with health. We have a right to claim its corporate leadership toward reform. The lowering of the stamina of the race by child labor, by overwork in bad surroundings and the employment of women in unfit trades—are not these matters which concern a medical congress as intimately as the grafting of bone on bone, the replacement of tissue and the clean and healing use of the knife?

"In a word, we hope for the time when the preventive and prophetic work of the medical profession will be at least as large as its effort for recovering lost ground of health. If the doctors will safeguard our health and keep us from illness as individuals and as a people, we can afford to subsidize them. From the point of view of their own pride and satisfaction, we think it would be better to keep people well rather than to cure them. Perhaps, when they have perfected their organization for the public responsibilities that offer, they will petition us to pay them on the Chinese plan of a salary so long as we are well, and a ceasing of pay while we are ill and they are working at our cure."

Society Proceedings

COMING MEETINGS

American Association of Anatomists, Cleveland, Dec. 31-Jan. 2.
American Physiological Society, Cleveland, Dec. 26-28.

PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting held Oct. 23, 1912

The President, DR. L. JAY HAMMOND, in the Chair

Occurrence of Bence-Jones Protein in Conditions Other Than Those of Characteristic Myeloma

DRS. C. G. GUTHRIE and THOMAS R. BOGGS, Baltimore: Although the great majority of cases of multiple myeloma show Bence-Jones proteinuria, carefully studied instances of the disease have been reported without the excretion of this unusual body in the urine. In others it has been absent either early or late in the disease. Clearly established Bence-Jones proteinuria has occurred in diseases other than multiple myeloma, among others, leukemia, injury, and in one case of metastatic carcinoma of the bones. In our case the original tumor was in the breast with wide-spread metastatic involvement of the bony skeleton. The condition was diagnosed clinically *intra vitam* and confirmed by the examination of a portion of the femur after death. The Bence-Jones protein was present in the urine during the period of examination, and its identity was clearly established by chemical tests. From this observation and from a study of the literature, we conclude that Bence-Jones proteinuria bears neither a constant nor a specific relation to myelomatosis, but may be associated with any one of a variety of disease processes involving the bone-marrow.

DISCUSSION

DR. ALEXANDER RANDALL: That the mere calling of attention to this matter in Baltimore brought to notice four cases in a year is suggestive that all cases of obscure bone-marrow disease, anemia and leukemia should be examined for this body. From Dr. Boggs' deductions I think we can say that with the finding of this body in the urine we have a case of bone-marrow disease. The substance has been found in a variety of conditions and in many parts of the body, and it is to be regarded as an entity. I should like to ask Dr. Boggs whether the bone-marrow has any characteristic appearance. When we realize that the kidneys have to do with all the metabolic processes of the body, and when we have a test that will tell us the function of the kidney, we shall have a wide sphere of activity in working out these processes.

DR. JAMES M. ANDERS: It is an interesting fact that, following the discovery of this protein body in the urine by Bence-Jones in 1847, the subject received scanty attention for twenty-two years. Other observations were reported in 1864 and in 1870. In 1902, Dr. Napoleon Boston and I reported three cases, and at that time made a review of the literature. A number of cases were found coming under the head of Dr. Boggs' paper. We also found two cases recorded in literature in which the body was associated with the clinical picture of pernicious anemia. There was a total of thirty-three cases due to all causes. While there are many conditions in which this body may be found in the urine, yet in any case in which we have clinical symptoms referable to multiple myelomas, the presence of this body in the urine should be regarded as a diagnostic feature. On the other hand, we cannot assume to-day that the presence of this protein body in the urine, in any case in which there are no symptoms pointing to multiple myelomas, has any diagnostic significance. I believe with Dr. Boggs that we are justified in assuming that protein urine is absolutely diagnostic of disease of the marrow of the bones, and perhaps we can go no further. That there are associated with most of the cases well-marked and progressive phenomena, as asserted by a number of writers, does not seem to have been true of the cases of Dr. Boggs or of Dr. Boston's and mine. With Dr. Boggs, I believe that routine examinations of the urine would reveal not only the protein body, but also other rare morphologic elements, more frequently than at the present time are observed.

DR. G. J. SAXON: The discovery of the Bence-Jones protein in 1847 and the failure to attach any clinical significance to it until 1889, when Kahler and Huppert reported a case of multiple myeloma from clinical and chemical aspects, respectively, is a sad illustration of the degree of enthusiasm which often greets the efforts of the laboratory worker. Moreover, not until 1903 was any systematic effort made to collect the cases exhibiting this protein. This was done by Anders and Boston. Dr. Boggs' advice to suspect the presence of this body in bone conditions should be kept in mind. Two years ago I examined the urine of a patient having carcinomatous metastases of the ribs, vertebrae and both femurs from a primary involvement of the mammary gland, and while I did not find it, I am not discouraged at not having done so. I might mention certain differentiating features of this substance. Unlike heteroproteoses, it is soluble in water. Unlike other proteoses, it is controvertible into metaproteins, is coagulated at low temperatures, yields protoproteose on gastric digestion and is not acted on by erepsin; unlike all soluble proteoses, it does not dialyze through parchment paper.

DR. THOMAS R. BOGGS: Answering Dr. Randall, I will say that there is confusion in the description of the characteristic multiple myelomas. In effect, what is found in this type of tumor, which is most frequently associated with this protein

body, is a loosely arranged sarcomatous tissue of stroma cells which contains also more or less evidence of abnormal growth of the elements of the blood, that is, the ancestral types of leukocytes and red cells.

The inquiry concerning the normal kidney and the excretion of this body touches one of the most interesting physiologic questions, which is, however, too large to be entered into in detail. Why a kidney will permit the passage of this body with all the characteristics of a heavy protein molecule, and hold back the albumin and globulin of the blood is interesting, but cannot at present be definitely explained. The relation of nephritis to this particular substance is not settled, but it is significant that large proportions of the cases coming to autopsy have not shown any characteristic nephritis. In our cases we are dealing with something different from the ordinary associations of the disease, that is, a different kind of tumor process, and the urine of our patient had not only this peculiar protein substance, but the serum albumin as well. We did not have an opportunity to study the kidneys. I believe that they would have shown the pathology of nephritis. Dr. Anders asked about the blood-count. The leukocyte-count was 9,000, with only a mild grade of anemia.

Gastric Dyspepsia Due to Intestinal Diseases, and Intestinal Indigestion of Gastric Origin

DR. THOMAS R. BROWN, Baltimore: I studied a series of cases of achylia gastrica with symptoms entirely intestinal, notably, diarrhea; and a series of cases of duodenal ulcer, and eighteen cases of chronic appendicitis, in each of which groups the symptoms were entirely gastric. It is of great importance to examine the gastric contents after the test meal in chronic intestinal cases, in considering the possibility of duodenal ulcer, and to examine gastric contents and stool carefully in cases regarded as gastric dyspepsia, and also in such cases to make a careful examination of the blood and careful temperature observations to determine if the basis of the condition is not some inflammatory process in the region of the appendix.

DISCUSSION

DR. ALFRED STENGEL: Just as cases of achylia gastrica often give rise to intestinal symptoms, I have found that gastric ptosis sometimes causes periodic attacks of diarrhea similar to those which occur in achylia gastrica and are relieved in some cases by a proper measure of support, by a reduction of irritation which takes place in these cases of marked gastric ptosis. Many cases of gastritis are due not to the condition of the stomach, but to the condition of the colon; these are benefited by treatment directed to the intestinal tract rather than to the stomach. Cases in which it has been shown that there is no gastric or duodenal ulcer demonstrate the fact that the hunger pain has not the absolute importance attributed to it. The pointing out of this important symptom is a distinct advance in diagnosis which has been given to us by the surgeons, but it is not so diagnostic as maintained by Moynihan and many other surgeons following him.

DR. WILLIAM E. ROBERTSON: Achylia gastrica is one of the few gastric diseases that give striking and positive laboratory findings. The difference between benign achylia and the achylia of gastric carcinoma occurred to me some years ago, and in thinking over sections of carcinoma that I have seen I was struck by the numbers of polynuclear cells found about the periphery of the growth. This led me to believe that we might find them in the gastric contents and afterward, after lifting a test meal and washing out the stomach, I found pus cells even where there was no ulceration of the growth. I had an opportunity of proving this five years ago in an operation on a woman. There was a small non-ulcerative growth on the lesser curvature near the anterior wall. This was sectioned, and great numbers of polynuclear leukocytes were found in the periphery. Partial gastrectomy was done and the woman is still living.

Diagnosis and Treatment of Obscure Cases of Pyelitis and Hydronephrosis

DR. GUY L. HUNNER, Baltimore: Many cases are overlooked and recover spontaneously. From this fact we may infer that the treatment should usually begin along medical and hygienic lines. Many cases are not diagnosed, and the patients continue in ill health. Too often the physician fails to examine a catheterized specimen of urine or fails to attribute sufficient importance to the finding of bacteria and leukocytes in such specimens. A marked infection of the kidney pelvis may be present without albuminuria and without pyuria. On the other hand, a marked pyuria may exist for years without apparent injury to the patient's health. Many cases are diagnosed and treated as some other disease, particularly as typhoid fever and malaria. Certain cases of pyelitis are diagnosed and treated as such when the pyelitis is secondary to appendicitis. Pyelitis secondary to ureter stone and particularly cases secondary to ureter stricture are sometimes treated as pyelitis without attention to the cause. Kidney pain may be due to hydronephrosis in cases with normal urine, the hydronephrosis being due to ureter stone or stricture. The literature ascribes a congenital origin for too many of these cases. Gonorrheal periureteritis is probably the cause of a few, and the former presence of a stone undoubtedly accounts for some cases of stricture. Some cases of stone and many cases of ureter stricture may be traced back to infections elsewhere in the body, as in the tonsils.

After the failure of medical and hygienic measures I would recommend the semisurgical methods of pelvic lavage for the pyelitis cases and of dilatation of the ureter for most of the ureter stricture cases and for some cases of ureter stone. All of my cases of colon bacillus infection of the kidney pelvis have been cured by lavage with silver nitrate solution. I use a 1:500 solution of silver nitrate without appreciable ill effects. I am convinced that the silver nitrate solutions are not efficient in the cases of *Staphylococcus aureus* infections. For these I am now using a solution of formaldehyd in 1:2,000 strength, using the commercial formaldehyd as the standard. Many patients do not break down the hexamethylenamin preparations sufficiently to cause antiseptic quantities of formaldehyd in the urine. For dilating ureter strictures I prepare a renal catheter with different-sized bulbs of wax placed about 5 cm. back of the tip of the catheter. These bulbs are eventually made as large as 5 mm. diameter if the stricture shows a tendency to contract.

DISCUSSION

DR. NORMAN B. GWYN: Once the suspicion of pyelitis has arisen we should at once start vigorous medical treatment, and move the patient to some place where the ureters can be catheterized carefully. While catheterization is being done, the other essential feature of diagnosis should be carried out. Skiagrams of the distended pelvis of the kidney should be taken. A vaccine can be prepared from the urine and a careful bacteriologic culture made, and if we suspect tuberculosis an inoculation can be done.

DR. DAMON PFIEFFER: Medical measures, in the majority of cases, are more or less futile. This is supported by a great number of the cases which Dr. Hunner has cited to-night. I believe that free drainage is the essential cause of the recovery of most of these cases. The question of diagnosis is of supreme importance.

Hygiene, Business and Government.—That health is the basis of all wealth, power and happiness is plain to any one. That business and government have for so long neglected to place hygiene in the front of all practical agencies for good, simply declares that those in charge of business and government have not yet risen to a full understanding of the situation they are trying to control. John Fiske remarked, "It takes a thousand years to raise the human family a single notch." In view of the tardiness of business men and those in control of government to grasp the business and governmental importance of hygiene, it would seem that Fiske much underestimates the time. Münsterburg said, "Hygiene can prevent more crime than any law." Disraeli, the practical statesman and empire builder, said, "The care of the public health is the first duty of the statesman."—J. N. Hurty in *Am. Jour. Public Health.*

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, January 14. Chairman, Dr. W. H. Sanders.

ARIZONA: Phoenix, January 6-7. Sec., Dr. John Wix Thomas.

COLORADO: State House, Denver, January 7. Sec., Dr. David A. Strickler, 612 Empire Building.

DISTRICT OF COLUMBIA: Washington, January 14. Sec., Dr. George C. Ober, 125 B Street, S.-E.

ILLINOIS: Coliseum Annex, Chicago, January 22-24. Sec., Dr. James A. Egan, Springfield.

INDIANA: Room 57, State House, Indianapolis, January 14-16. Sec., Dr. W. T. Gott, State House.

MINNESOTA: Pathological Institute, University of Minnesota, Minneapolis, January 7. Sec., Dr. Thomas S. McDavitt, Lowry Building, St. Paul.

NEW MEXICO: Santa Fé, January 13. Sec., Dr. W. E. Kaser, East Las Vegas.

NEW YORK: January 28-31. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

NORTH DAKOTA: Grand Forks, January 7. Sec., Dr. G. M. Williamson.

OKLAHOMA: Oklahoma City, January 14. Sec., Dr. John W. Duke, Guthrie.

OREGON: Portland, January 7. Sec., Dr. E. B. McDaniel, 702 Electric Building.

RHODE ISLAND: State House, Providence, January 2. Sec., Dr. Gardner T. Swarts, State House.

SOUTH DAKOTA: Watertown, January 8. Sec., Dr. L. G. Hill.

UTAH: Salt Lake City, January 6-7. Sec., Dr. G. F. Harding, 310 Templeton Building.

VERMONT: Montpelier, January 14-16. Sec., Dr. W. Scott Nay, Underhill.

WASHINGTON: Spokane, January 7-12. Sec., Dr. F. P. Witter, Traders' Block.

WISCONSIN: Milwaukee, January 7-9. Sec., Dr. John M. Beffel, 3200 Clybourn Street.

A MEDICAL COLLEGE IN VENEZUELA

Since the last publication of the list of foreign medical schools, the Council on Medical Education has received word from two different sources, regarding the medical school located at Caracas, Venezuela. One of the accounts is in the article on "Medical Education in South America" by Dr. Jacob Frank which appears in this issue. The following is the account received from Dr. Rawson J. Pickard, of the Colon Hospital, Canal Zone.

"The Universidad Central de Venezuela is one of the oldest universities of the western hemisphere—that at Lima, Peru, is the oldest—but the medical school was not organized until 1800 by Dr. Vargas, the 'Father of Medicine in Venezuela,' to whom a statue is erected in the Plaza Vargas in La Guayra, his birthplace, and another in the patio in the university building in Caracas, about which are the medical lecture-rooms.

"The course takes five years, the first two spent on the fundamental sciences, the second two on anatomy, bacteriology, pathology and clinics, leading to the degree of 'Bachiller.' The last two years of the course are spent as extern and intern in the Hospital Vargas, services being chosen by competitive examination. The hospital, reached by a trolley line, is on a foothill of the wooded mountain-chain which lies between Caracas and the Caribbean Sea. The wards are in pavilions at right angles behind the offices and dispensary forming the facade. Flower gardens lie between; the windows scarcely ever need be shut, and convalescents can look out from the veranda connecting the pavilions over the red-roofed city to the mountains that hem in the green valley of the Guayre.

"The laboratories are well equipped. The director, Dr. Henriquez, demonstrated *Spirochæta pertenuis* from some cases of yaws in the wards. There is a plague laboratory, with a glass cabinet containing rubber sleeves for dissections, etc. In the museum is much material, especially for the study of tropical pathology. The hospital is of 350 beds, charity, with about 3,400 yearly admissions. These, as well as the dispensary clinics, draw from the country for considerable distances, besides from the 80,000 population of Caracas. Necropsies are optional. Nursing is done under the direction of French nuns; it is not at all of American standard.

"The chief surgeon, Dr. Acosta-Ortiz, invited me to see a hysterectomy, done with a rapid technic and neatness. Several things were at variance with American custom. Instead of a laparotomy sheet and many towels, the field of operation was narrowly bordered by gauze. The instruments were kept in a metal dish and sterilized by burning alcohol on them. Gloves were not used, owing to a prohibitive tariff.

"Fifteen or twenty students who were crowded about the operating-table courteously made room for me next the operator, pressing so close that I momentarily expected to be touched by him. There was a 'new' woman present, a senior, certainly a great rarity in Spanish-America. She spoke English and intended to take the year of foreign study, which adds so to prestige in New York.

"Spinal anesthesia was used here commonly long before Jonnesco's tour through the States. The Spanish are almost too ready to try the new. Statistics from tropical writers, however, are quite favorable to this anesthesia, and it is used freely. Several articles appeared in *El Tiempo*, a daily, by Dr. Yanes, explaining the use of stovain, and the simplicity of carrying this anesthetic which enables one to be operator and anesthetist. He used the spinal fluid withdrawn as the solvent in several minor operations which I saw, 'to obtain an isotonic solvent.'

"Text-books were chiefly in French, with some in English and German, on account of the lack of good authors in Spanish. The similarity of the language to Spanish and the lucidity and simplicity, especially of medical French, give that language the preference. They read, translated into Spanish, with the speed of their own language; besides, languages are not taught here as mental exercises merely.

"The medical students publish a small monthly review, *Revista de la Sociedad Vargas de Estudiantes de Medicina*. Several presented me by Dr. Ascanio-Rodríguez contained articles by him on 'Las Pascuas Azules,' a morning glory, as a delicate indicator. Other articles were on bronchitis in cattle caused by *Strongylus micrurus*, by Señor Rángel, and there were book reviews. There was a marked tendency to philosophical discussion and to oratory.

"The university building is of Gothic design, resembling, in plaster, some of the buildings of the University of Chicago, and somewhat incongruous beside the wide tree-lined boulevard, in which trolley-cars ran past long burro-trains. Besides writing a thesis, graduates deliver an oration in an imposing room, the *paraninfo*, gorgeous with red velvet hangings. Here in the presence of classmates, faculty and friends, he reads into life the ideals that in Spanish-America are all the nobler for the sordid contrast to the practical life without. Good luck to them. Their lives, efforts and brilliant intellects are terribly wasted by struggling with the uncertainties of their social fabric."

Louisiana November Report

Dr. A. B. Brown, secretary of the Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, Nov. 4-6, 1912. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 49 of whom 33 passed and 16 failed. One candidate was licensed through reciprocity. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
University of Alabama	(1912)	88.1
University of Arkansas	(1895)	75
American Medical Missionary College	(1900)	80.7
University of Louisville	(1908) 76.1; (1909) 75.8; (1910) 78; (1912) 88.2.	
Tulane University of Louisiana	(1909) 84.2; (1912) 78.5, 80.6, 84.1, 84.2, 84.5, 85.8, 86.2, 87, 87.3, 88.1, 89.1, 89.3, 90.1, 91.1, 92.2, 92.6.	
Woman's Medical College of Pennsylvania	(1912)	88.2
Meharry Medical College	(1912)	75.9, 81.8
Memphis Hospital Medical College	(1912)	84.4
Vanderbilt University	(1912)	84.2, 86.3
University of Nashville	(1904)	*68.2
University of Texas	(1911)	87.2
University of Virginia	(1907)	85.1
FAILED		
University of Arkansas	(1912)	69.1
University of Louisville	(1912)	68.9, 74.4

Memphis Hospital Medical College (1908) 52.4, 62.5; (1910) 73.1; (1911) 66.7; (1912) 32, 51.9, 64.6, 66.6, 66.9.
College of Physicians and Surgeons, Memphis.... (1911) 49.6
University of Tennessee.... (1912) 55.7, 74.6
Fort Worth School of Medicine.... (1911) 65.9
* Allowed 8 per cent. for years of practice.

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University Medical College, Kansas City.....	(1896)	Missouri

ANATOMY

1. Name the muscles that move the eyeball; give their nerve-supply. 2. Give origin, course and distribution of right recurrent laryngeal nerve. 3. Give relations of brachial artery and name its branches. 4. Name arteries which supply the thyroid gland. 5. What are the two kinds of bone tissue and where is each found? 6. What muscles connect the scapula with the trunk? 7. What tends to prevent anterior displacement of the elbow-joint? 8. Describe briefly the circle of Willis. 9. Name muscles of gluteal region and give their origin and insertion. 10. Describe the radius and its muscular attachments.

CHEMISTRY

1. Define atomic weight; (b) molecular weight; (c) explain the terms reaction and reagent. 2. What elements belong to the halogen group, and why are they so called? 3. What is starch; (b) properties; (c) by what test can it be recognized? 4. Explain the phenomenon of respiration from a chemical standpoint. 5. What is the specific gravity of healthy urine? (b) How is the total amount of solids approximately estimated from the specific gravity? 6. Describe a test by which urea may be determined quantitatively in the urine. 7. What is the chemical antidote for corrosive sublimate; (b) sulphuric acid; (c) caustic potash? 8. What are enzymes? (b) Name the proteid-hydrolyzing and starch-hydrolyzing enzymes. 9. Name the several tests for sugar in the urine and state the one you consider the most reliable, and why. 10. Give a chemical test for blood.

PATHOLOGY

1. What is the difference between (a) anemic infarct and (b) hemorrhagic infarct? 2. Differentiate pathologically between (a) lobar pneumonia and (b) lobular pneumonia, as seen under the microscope. 3. Describe the microscopic changes occurring in the kidney in acute diffuse nephritis. 4. Describe the mode of action of the phagocytes. 5. What are the characters of tumors in general? 6. Describe the healing of a compound fracture of a long bone. 7. What part of the spine is affected by Pott's disease? Describe the pathologic changes taking place in the bone in Pott's disease. 8. What pathologic changes occur in acute suppurative arthritis (metastatic, not traumatic)? 9. Describe the tubercle bacillus and give a method for determining its presence in sputum. 10. What is an "autogenous vaccine"? On what principle or principles is vaccine therapy based?

PHYSIOLOGY

1. Define anabolism and give examples of anabolic changes. 2. What are the functions respectively of (a) the mouth, (b) the stomach, (c) the small intestines, (d) the large intestines, in the alimentary process of absorption? 3. Describe briefly the physical and morphologic characters of the leukocytes (white blood-corpuscles). 4. What is a polynuclear leukocytosis and what is its physiologic and pathologic significance? 5. State briefly the causes of the first and second sounds of the normal heart. 6. What is the distinction between secretion and excretion? Give examples of each. 7. What are the constituents of sweat? 8. What are the constituents of the intestinal juice and what is their action in digestion? 9. What are the functions of the spinal cord? 10. Give the distribution and the function of the glossopharyngeal nerve.

THERAPEUTICS

1. What are the therapeutic uses of iodin and the iodids, and how are they administered? 2. When and how should iron be administered? 3. For what medicinal purposes are mercuric chlorid and mercurous chlorid used? 4. What are the indications for the use of chloral hydrate and how is it administered? 5. What ammonium salts are used as expectorants, and what is their action? 6. How would you treat a case of acute opium poisoning? 7. What are the indications for the administration of nitroglycerin and how is it administered? 8. What are the uses of cinchona and its alkaloids? 9. When and how would you administer amyl nitrite? 10. In what conditions and how would you administer potassium bromid?

PHYSICAL DIAGNOSIS

1. How would you differentiate between an abscess of the liver and acute hepatitis? 2. Define vocal resonance and state its significance in pulmonary diseases. 3. What are the physical signs of pericarditis, with and without pericardial effusion? 4. Differentiate between inguinal hernia and hydrocele of the cord. 5. Name the commonest causes of true dyspnea, and what are the physical signs of progressive dyspnea? 6. Give the differential diagnosis between paralysis agitans and tabes dorsalis. 7. What are the commonest causes of and how would you diagnose unilateral facial paralysis? 8. Differentiate enlargement of the cervical glands (cervical adenitis) due to: (a) tuberculosis; (b) syphilis; (c) malignant disease; (d) Hodgkin's disease. 9. Wha are the physical signs of mitral regurgitation when compensation is established? 10. How would you differentiate: (a) biliary colic; (b) renal colic; (c) floating kidney?

SURGERY

1. What are the causes of gangrene? 2. Differentiate between typhoid fever and appendicitis. 3. What is coxalgia? Give treatment. 4. Give treatment of an acute infection of the hand. 5. Describe and give treatment of Colles' fracture. 6. Diagnosis and treatment of strangulated inguinal hernia. 7. What is a carbuncle? Give treatment. 8. Give the different forms of dislocation of the shoulder. Describe how you would reduce the dislocation. 9. What is hyperthyroidism? What operation may be indicated in such a case? 10. Diagnose pleuritic effusion, purulent and non-purulent.

OBSTETRICS

1. Name the joints of the obstetric pelvis. 2. What is the perineal body and what are its functions? 3. What conditions justify the irrigation of the puerperal uterus? 4. How would you manage a breech presentation? 5. What is version? (b) State two conditions that would require it. 6. What signs in delayed labor are indications for the use of forceps? 7. What conditions, maternal and fetal, would justify the induction of premature labor? 8. Treat a case of puerperal eclampsia. 9. What is involution and when is it completed? (b) Subinvolution and its treatment? 10. What are the signs of fetal death *in utero* and what treatment is necessary when such a condition exists?

GYNECOLOGY

1. Distinguish symptomatically between uterine carcinoma and uterine fibromyoma. (b) On what does the possibility of permanent operative cure in cancer depend? 2. What essentials are to be followed in operating for secondary repair of the completely lacerated perineum? 3. What are the principal causes of pelvic peritonitis? 4. Describe the blood-supply of the uterus. 5. What are the principal causes of dysmenorrhea? 6. Of what pathologic significance is the retroverted uterus in the virgin female? 7. Describe the mechanism of uterine prolapse. What surgical treatment will you apply in cases of complete procidentia complicated with cystocele and rectocele? 8. Differentiate between uterine polypus and inversion of the uterus. 9. Why is gonorrhea in women so difficult to cure? 10. Describe the vulvovaginal (Bartholin's) glands.

HYGIENE

1. At what temperature would you keep a sick-room and how would you ventilate it for a person with pneumonia? 2. In dormitories, what should be the minimum of air-space for each occupant? 3. How would you disinfect typhoid excreta? 4. How would you disinfect a room after a case of scarlatina? 5. Give hygiene and general care of a case of pulmonary tuberculosis to prevent infection of others. 6. Give general directions for the care of public schools and care and inspection of school children. 7. What diseases are propagated by drinking-water? How may impurities in water be detected? 8. Name four diseases that may be transmitted by milk. 9. What is an epidemic disease; an endemic disease; a sporadic disease? 10. What deleterious gases accumulate in ill-ventilated rooms?

Book Notices

HANDBUCH DER GESAMTEN MEDIZINISCHEN ANWENDUNGEN DER ELEKTRIZITÄT, EINSCHLIESSLICH DER RÖNTGENLEHRE. Herausgegeben von Prof. Dr. Med. H. Boruttau, Privatdozent für Physiologie an den Universität Berlin, und Prof. Dr. Med. L. Mann, Privatdozent für Nervenheilkunde an der Universität Breslau. Volume 2, Part 2. Paper. Price, 30 marks. Pp. 1102, with illustrations. Leipzig: Werner Klinkhardt, 1911.

The first volume of this work was reviewed in these columns when it appeared, some months ago. In this, the second volume, the therapeutic uses of electricity are discussed.

In considering the therapeutic value of electricity one must distinguish clearly between the effects of electricity as a physical agent and the effects of electricity *per se*, as for instance in the use of the ordinary galvanic or faradic current or the so-called franklinization. That distinct local effects of a physiochemical nature may be produced by electricity is unquestioned; but it is doubtful if any such things exist as intangible and mysterious therapeutic effects in general conditions or even in local conditions. On this phase of the subject some of the contributors to this volume at times are quite frank. Thus, in a chapter devoted to the factors which have a beneficial influence, it is stated, concerning the beneficial effects of the electric bath, that the bath itself is the great therapeutic factor and probably of much greater importance than the electricity. Under electric massage it is stated that a scientific foundation for such a procedure has not yet come to hand.

"Suggestion may be regarded as an important curative factor in the different electrotherapeutic methods." The suggestion may be intentional or unintentional. When in a hysterical paralysis, contracture or anesthesia, the paralyzed limb is treated with the static spark or with the faradic brush or with the four-celled bath, it is not electrotherapy but intentional suggestion." That the author himself doubts the therapeutic value of electricity is well shown by the following sentence: "In the discussion of the effects of electricity I have shown in what manner one must *imagine* the curative effect of the electricity *in case such an effect really exists.*" These quotations indicate that one must not place too much confidence in the use of electricity, or expect too much from it, as a therapeutic agent.

Part 3 of the volume treats of electric lighting, electric heating and electric motors as used by the physician, and of electrolysis, cataphoresis and phototherapy. These chapters,

although very technical, are of great scientific and practical interest. The work as a whole deals with the subject of electricity in a most thorough and comprehensive manner.

STUDIES IN CANCER AND ALLIED SUBJECTS: PATHOLOGY. Conducted under the George Crocker Special Research Fund at Columbia University. Volume II. Boards. Price, $5 net. Pp. 267. New York: The Columbia University Press, 1912.

This book consists of twenty-seven articles by Isaac Levin, M. J. Sittenfeld, Robert A. Lambert, Frederic M. Hanes, Robert T. Frank and A. Unger, previously published in such easily accessible journals as the *Journal of Experimental Medicine, Surgery, Gynecology and Obstetrics*, etc., and all dealing with the results of investigation into some phase or other of "the cancer problem." Prof. W. G. MacCallum writes an introduction. The collection in this way of the articles published from one laboratory or institute is of some convenience to active workers in the same field, and it also forms a more or less imposing monument, in appearance at least, to the institution from which it is issued; yet there is occasion for the question whether in view of the expense and the increased labor on the part of libraries such republication really is worth while. In the United States this kind of republication is prevalent at present. In many cases it is feared that the chief result is accumulation of books that are not consulted. No doubt the great value of the investigative work represented in the volume under consideration is such as to warrant republication, but no matter how epochal the work, it would not justify publication in the form selected in this instance. The volume is so large as to be unwieldy; many book-shelves will not receive it standing; and the blank margins are of such unusual width that considerably less than half of each page is occupied by print; hence more than one-half of the book is unused paper. That the Columbia University Press could become responsible for such an example of pure waste and lack of judgment in book-making passes understanding.

A SECOND STUDY OF EXTREME ALCOHOLISM IN ADULTS, with Special Reference to the Home-Office Inebriate Reformatory Data. By David Heron, D.Sc. University of London, Francis Galton Laboratory for National Eugenics. Eugenics Laboratory Memoirs, XVII. Paper. Price, 5 shillings. Pp. 95. London: Dulau & Co., 1912.

As social questions are to be solved not by opinion but by statistical facts, the data collected by Dr. R. Welsh Branthwaite, inspector under the British inebriates acts, marked an advance in the study of inebriety. A detailed account was given of 166 men and 865 women inebriates. Heron's memoir is based on a consideration of these women inebriates in view of their larger number and because the problems of extreme alcoholism concern women to a greater extent than men inebriates. Figures showing the relative intensity of drunkenness in men and women prove that

> . . . men, at most, differ as Heaven and Earth,
> But women, worst and best, as Heaven and Hell.

After an exposition of the material, Heron compares the various characteristics of inebriates as a whole, as modified by different intensities of alcoholism, and as contrasted with mental defects in the general population. He has taken pains to avoid the pitfalls in the path of interpreters of statistics, and his presentation of the subject will interest students of the social questions. He concludes with a survey of the results of reformatory treatment, and makes practical recommendations for further inebriety legislation.

THE BUSINESS OF MINING: A Brief, Non-Technical Exposition of the Principles Involved in the Profitable Operation of Mines. By Arthur J. Hoskin, M.E. Cloth. Price, $1.50. Pp. 224, with illustrations. Philadelphia: J. B. Lippincott Company, 1912.

Those physicians, who are inclined to invest rashly in mining stocks and enterprises, might find it advantageous to read this little book on "The Business of Mining." After describing in a more or less non-technical way the varieties of mines and methods of mining, the author devotes considerable space to a sensible discussion of mining as an investment, giving some needed attention to the genus "promoter," a study of whose methods may be of interest and value to the would-be investor.

Miscellany

Supervision of Communicable Diseases in New York

The sanitary and public health control of the 5,100,000 persons comprising the population of New York City must of necessity furnish not only much information of general interest but also many object lessons of success and failure which can well receive wide attention from public health officers and sanitarians. The October bulletin of the New York Department of Health reviews the organization and work of its division of communicable diseases, a division instituted in 1892 as a defensive measure against a threatened invasion of cholera. When this danger had passed, the division undertook the study and control of diphtheria and made bacteriologic examinations for tubercle bacilli for private physicians, together with routine laboratory reports on suspected cases of typhoid, malaria and meningitis. The sanitary supervision of these diseases followed naturally.

In 1905 the division was put on its present basis. Its functions now include (1) the sanitary supervision of tuberculosis, typhoid, cerebrospinal meningitis, pneumonia, malaria, puerperal septicemia, abortion, erysipelas, poliomyelitis and venereal disease; (2) the direction of tuberculosis camps and clinics; (3) the administration of diphtheria antitoxin and intubation; (4) the direction of the diagnosis laboratory and collection of specimens throughout the city.

The administration of diphtheria antitoxin for curative and prophylactic purposes and the practice of intubation have been maintained since 1895. In 1911, 6,167 patients were injected with antitoxin. Tuberculosis is reportable and the registration and supervision of this disease are facilitated by a system of health department clinics for tuberculous patients. In these tuberculosis dispensaries a total of 28,570 persons received treatment in 1911, of whom 16,562 were new cases. In 1906 an original and effective line of work was begun by fitting out an abandoned ferry-boat as a day-camp for tuberculous patients living at home. This work has since been extended to include two other camps under the department and several connected with hospitals. In these camps a hot dinner is provided at noon, and lunches of milk and eggs in the morning and afternoon Open-air classes are conducted for the children, the equipment being provided by the Department of Education. The Department of Health conducts a tuberculosis sanatorium at Otisville, N. Y., for admission to which there is always a long waiting list.

The sanitary supervision of typhoid includes the investigation of all cases by inspectors, who visit both the patient and his physician, more complete reports from the physician on the termination of the disease and a thorough investigation of the possible sources of infection in each case, whether by contact or through the food-supply. Pin-maps of each borough show any unusual grouping of cases and may point out the source of infection. Also a tabulated record is kept of the date of onset and the milk-supply in each case. The division is preparing to make prophylactic typhoid vaccinations on request or in local epidemics, and it is expected that in the near future removal to hospital will be required when conditions at home preclude proper preventive measures. In 1911, 3,686 cases of typhoid were reported and 13,521 inspections were made.

A similar and even more rigid supervision is maintained in cerebrospinal meningitis and anterior poliomyelitis. Reports are required of all cases of malaria, pneumonia, erysipelas, abortion and puerperal septicemia, but patients are not visited. Cases of malaria reported are investigated to determine the validity of the diagnosis and whether it is supported by laboratory findings. Reports of venereal disease have only recently (1912) been required. These reports are filed but are not open to the public. The laboratory will soon be prepared to make all examinations requisite in connection with these diseases. The work of the diagnosis laboratory in 1911 included 40,048 sputum examinations, 68,868 throat cultures, 10,549 examinations of typhoid blood, 2,376 of malarial blood,

2,926 of typhoid urine, besides numerous examinations of pus and spinal fluid specimens and miscellaneous preparations.

The budget of the division of communicable diseases for 1912 was $435,397.00.

Sterilization of Drinking-Water with Minimal Amounts of Calcium Hypochlorite.—The method of sterilizing water according to Dserschgowski's technic has recently been tested at Cronstadt, Russia, and Antonowsky reports the results in the *Ztschr. f. Hygiene*, 1912, lxxii, 421. His aim was to determine the relative resistance of cholera and typhoid germs and the colon bacillus to amounts of chlorinated lime in the water too small to affect its taste. His experiments demonstrated, he states, that the effectual agent in sterilization of water by neutral solutions of chlorinated lime is the oxygen. The effect consequently depends on the oxidizableness of the water rather than on the proportion of chlorinated lime. With addition of catalyzers, such as hydrogen or manganese dioxid, the bactericidal action of chlorinated lime is increased. With a proportion of 0.0025 gm. active chlorin to the liter, ten minutes are required for partial destruction of the germs and checking of the growth of the others; this interval is necessary on account of the slowness of the chemical changes involved, the gradual release of hypochlorous acid in the solution of chlorinated lime. He regards the method on the whole as a good help in combination with mechanical measures for purification of drinking-water.

The Dangers of Uterine Fibroids.—It has been the custom in past times to consider fibroid tumors of the uterus as harmless neoplasms, to be put up with, lived with and finally to be buried with. Further, we have been taught to believe that the latter supposition is in no way hastened by the presence of a fibroid tumor. So ingrained was this view that even quite recently an eminent authority stated in a paper that death from uterine fibroids was the rarest occurrence. The more, however, we see of gynecologic and obstetric practice, the more, in my opinion, we must recognize that uterine fibroids bring in their train very serious disabilities, lead to much chronic invalidism, and play a by no means small part in hastening the demise of many individuals.—Thomas G. Stevens in *Clin. Jour.*, London.

Medicolegal

Validity of Act Giving State Board of Health Authority Over Water-Supplies

(State Board of Health vs. City of Greenville (Ohio), 98 N. E. R. 1019)

The Supreme Court of Ohio holds that the act of the General Assembly passed April 7, 1908, entitled "An act to authorize the State Board of Health to require the purification of sewage and public water-supplies and protect streams against pollution," now being Section 1249 et seq. of the General Code of Ohio, is a valid and constitutional exercise of the police power of the state. The court says, among other things, that this legislation is designed to preserve and protect the public health and comfort, and therefore falls directly within the police power of the state. This power includes anything which is reasonable and necessary to secure the peace, safety, health, morals and best interests of the public.

In granting to a municipality certain powers to be exercised for the benefit of the public health of that municipality, the state has not relinquished its authority and control in this important particular over any of the territory comprised within the limits of the state. The duties and powers of the State Board of Health extend throughout the state irrespective of political divisions or territories embraced within municipalities. The general provisions for the preservation of the life and health of the people of the state are no more suspended in the territory comprised within a municipality than are the criminal laws of the state, and this case would illustrate the folly of a state delegating to any municipality full and complete control of matters pertaining to the public health. A municipality might then in the preservation of sanitary conditions in its own territory work incalculable mischief to the health and comfort of people living in adjacent territory. To prevent this being done, it is primarily necessary that there should be one central authority clothed with the power of affording equal protection to all.

The state does not seek to control the discretion of the municipal authorities in this matter, but, on the contrary, refuses to commit to them any discretion touching the particular matters committed to the care and control of the State Board of Health. In so far as they are charged with any duty in reference to the carrying out of the orders and directions of the State Board of Health, they are ministerial officers only, and it is fully settled that a public officer may be required to perform a ministerial act, and that a failure or refusal by such officer to perform a ministerial act may be made a criminal offense and punished as a misdemeanor.

The provision in this legislation by which a municipality may challenge the judgment of a State Board of Health and submit the question to a board of arbitration composed of men skilled in sanitary work is a most liberal provision so far as municipalities are concerned, and far more liberal than many of the statutes relating to the powers of a State Board of Health. There is no theory on which a mere agency of the state has a right to litigate the right of the state to enforce, through any agency it pleases, sanitary rules and regulations for the preservation of the health and comfort of all the people of the state.

Nor is this legislation unconstitutional because it delegates the taxing power of the city to the State Board of Health.

If the city possessed the absolute right to discharge its sewage into a living stream of water, thereby polluting the same and destroying all riparian rights below and creating a menace to the health and comfort of those living on the banks of this stream below the point of discharge, then it might be said that any change in the manner of sewage-disposal would not be for the benefit of the city, but for those citizens of the state residing below the outlet of the city sewers. But the city has no such absolute right, and whenever this condition of affairs exists it is right and proper for the state to interfere and prevent it from a further continuance of this nuisance; and, the city then having no other means for the disposal of its sewage, it is primarily for its benefit that such disposal plant must be established.

The health of the inhabitants of the city is still a matter of concern to the state, and of such vital concern that the General Assembly has not thought proper to commit it exclusively to the control and discretion of men who may or may not have any particular ability or experience in sanitary affairs. The loss of a single life is a direct economic loss to the state, and therefore it wisely refrains from committing to inexperienced people final discretion as to the means and methods of preserving the life and health of its citizens; but, aside from the concern of the state for the health and comfort of the residents of any one city, its vigilance seeks to serve a larger purpose. Cities are no longer inclosed by stone walls and separate and apart from the balance of the state. The sanitary condition existing in any one city of the state is of vast importance to all the people of the state, for, if one city is permitted to maintain insanitary conditions that will breed contagious and infectious diseases, its business and social relation with all other parts of the state will necessarily expose other citizens to the same diseases. But with the wisdom or folly of withholding from the local authorities final discretion over these matters, the court is not concerned. It is beyond question the right of the General Assembly to do so, and the court need not, and ought not, to inquire what motives moved it in withholding such power.

The disposal plant is for the benefit of the residents of the city. It is primary duty of the city to provide for sanitary disposal of its sewage, and it is not in violation of any provision of the constitution that it should bear the entire cost of erecting and maintaining a purification plant, and to require it to do so is not an arbitrary, unreasonable, or unfair exercise of the police power of the state.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, New York

November, II, No. 11, pp. 825-895

1 *Cold Storage and Public Health. W. T. Sedgwick, Boston.
2 *Physics of Refrigeration. P. H. Bryce, Ottawa, Canada.
3 Bacteriology of Fermentation and Putrefaction in Relation to the Conservation of Foods. S. C. Prescott, Boston.
4 Hygienic and Economic Results of Refrigeration in the Conservation of Poultry and Eggs. M. E. Pennington, Washington, D. C.
5 *Hygienic Results of Refrigeration in the Conservation of Fish and Mollusks. H. D. Pease, New York.
6 *Cold Storage in Relation to the Food-Supply. H. E. Barnard, Washington, D. C.
7 Effects of Temperature and Humidity on Fatigue. F. S. Lee, New York.
8 Public Health—Past and Future. H. W. Hill, Minneapolis.
9 The Trend of Medico-Social Effort in Child Welfare Work. W. C. Phillips, New York.
10 Recent Typhoid Outbreaks in Kona, Hawaii. E. S. Goodhue, Hawaii.

1. **Cold Storage and Public Health.**—Sedgwick believes that, by cold storage to-day, rightly supervised by boards of health, as it should be, the public health has been and will be immensely promoted. The public health will also be promoted indirectly through the cheapening of cost of food in two ways: first, by saving what would have been lost at one season and keeping it over to another, when prices would have been much dearer than if it had not been kept and the supply at the later period increased; and second, by encouraging production.

2. **Physics of Refrigeration.**—Successful refrigeration, Bryce points out, involves that goods shall be taken from cold storage in the pink of condition; hence, this demands that perfectly fresh, matured products shall at the beginning be placed in the cold storage and when so placed given the most skilful treatment possible during their detention there. Being essentially an economic proposition, it means the most careful attention by the engineer in charge of the temperature and relative humidity of the cold-storage room, assuring that such be neither too high nor too low. The more delicate the thermometer, the greater the success in maintaining evenness of temperature. While the perfection of any product placed in cold storage is a *sine qua non* to highest success, whether hygienic or commercial, yet permanent results must depend on how economically and yet efficiently the mechanical and physical appliances involved perform their work.

5. **Refrigeration of Fish.**—From the sanitary standpoint, at least, says Pease, the problems in the refrigeration or freezer storage of fish and oysters relate almost without exception to the conditions under which the food or oysters have been caught or gathered and prepared for refrigeration, and to the methods of handling these food products after they have been moved from the influence of processes of refrigeration.

6. **Cold Storage and Food-Supply.**—In order to promote uniformity of legislation by the several states, a thing greatly to be desired in all regulative legislation, the National Association of Food Officials in 1911 gave to a committee of its members the task of drafting a model cold-storage bill. Barnard is chairman of that committee. The committee recognizes the need for legislation: first, to protect the public health against the sale of unfit food; second, to prevent cornering of the food-supply and consequent unfair prices to the consumer, and third, to insure both to the consumer and to the producer the sale of goods properly labeled. The committee defines cold storage as a warehouse for the holding of food products at or below a temperature of 40 F. It holds that a cold-storage warehouse is an establishment employing refrigerating machinery or ice for the purpose of refrigeration where food products are stored for thirty days or more at a temperature of 40 F. It assumes that the states have already at hand machinery for the sanitary control of food-producing establishments, and it provides that the operators of cold-storage warehouses shall obtain a license from the state board of health for conducting the business after a sanitary inspection has shown the warehouse to be in satisfactory condition. In the event a warehouse so licensed becomes unsanitary, it is made the duty of the state board of health to revoke the license. The bill provides that a complete record shall be kept of all goods entering storage and that a quarterly report of such facts shall be presented to the state board of health. It is believed that such reports will prevent the cornering of the food-supply. It provides that no article of food shall be placed in storage if not sound and in good condition, or unless it has been prepared in accordance with the pure food and sanitary laws. The committee is unanimous in its belief that cold-storage legislation should not antedate pure food and sanitary food legislation, but rather should follow and supplement it. When food is placed in storage the date of entry is plainly marked on the container, and when removed it is again marked. No goods shall be held in cold storage for a longer period than twelve calendar months, except under certain conditions referable to the state board of health. It provides that goods which have been in storage must be labeled "Cold Storage" in such manner that the consumer knows when he purchases his eggs, for instance, that they are storage eggs. It provides that the state board of health may make all necessary rules and regulations to secure a proper enforcement of the law.

American Journal of Neurology, New York

November, VIII, No. 11, pp. 567-602

11 *Renal Hematuria. H. L. Elsner, New York.
12 Hematuria with Case Reports. C. M. Harpster, Toledo, Ohio.
13 Relation of Proctology to Urology. G. B. Evans, Dayton, Ohio.
14 Gonorrhea in an Artificial Urethra. G. F. Lydston, Chicago.
15 A Topographic Cysto-Urethroscope. J. London, New York.
16 Case of Congenital Double Urethra. W. Lenehan, Nashville, Tenn.
17 Infantile Kidney and Occlusion of Ureter with Nephrolithiasis on the Opposite Side. J. S. Lewis and C. W. Bethune, Buffalo, N. Y.
18 Survival After Several Operations in Spite of Unusually Low Phenolsulphonephthalein Output. E. L. Keyes, New York.

11. **Hematuria.**—Elsner says that many cases of renal hemorrhage, whether associated with pain or not, will remain unexplained. In reaching conclusions, however, it will be wise to extend the search beyond the kidneys themselves; to take urine, heart, blood-vessels, blood-pressure and the background of the eye into consideration and wherever possible couple the knowledge gained from a thorough consideration of these organs with that which is revealed by the cystoscope, though we are not to be disappointed if occasionally cystoscopy and segregation of the urine fail to supply convincing data.

Archives of Diagnosis, New York

October, V, No. 4, pp. 309-408

19 Errors in Clinical Diagnosis of Mental Disorders Associated with Cerebral Syphilis. F. M. Barnes, Washington, D. C.
20 New Method of Duodenal Intubation. A. Abrams, San Francisco, and G. O. Jarvis, Philadelphia.
21 Duodenal Intubation for Diagnosis. F. B. Turck, New York.
22 Atony of Cecum; Procedure Facilitating Its Recognition. H. Stern, New York.
23 Avulsion of Mesentery with Report of Case. H. B. Delatour, Brooklyn.
24 Hysterical Paralysis of Intestine (Paralysis Intestinalis) of Somewhat Rare Form. H. Illoway, New York.
25 Present Value of Serodiagnosis of Visceral, Malignant Neoplasms and Plea for a Universal Technic. B. G. R. Williams, Paris, Ill.
26 *Dome-Like Appearance of Abdomen; Point in Differential Diagnosis of Extra-Uterine Pregnancy. A. Shulman, New York.
27 Practical Points in Diagnosis of Some Important Eye Conditions. C. Graef, New York.

26. **Dome-Like Appearance of Abdomen.**—A sign and symptom of extra-uterine pregnancy, which Shulman says, is pathognomonic and still unmentioned in the text-books on gynecology, is the dome-like appearance of the abdominal wall in ruptured extra-uterine pregnancy caused by the large accumulation of blood in the pelvic and abdominal cavities in sufficient quantity to force the overlying structures, the peritoneum, muscles, fasciae, areolar tissue and skin of the abdominal wall in the median line upward and outward in the direction of least resistance. This hemispherical or cup-shaped roof, as a rule, makes its appearance suddenly, the patient being overcome with severe, sharp, lancinating pain, falls to the floor in a fainting spell and presents at once all the signs of

acute anemia. In exceptional cases there is a sudden loss of a large amount of blood into the peritoneal cavity. In such a case the symptoms are striking and urgent. The patient's face is blanched, her nose, forehead and fingers are cold, the pulse is rapid and weak and failing, a cold sweat appears on the face, respiration is short and labored, and over all is the intense pain which is due to the blood spreading over the peritoneal cavity and of which the patient complains as long as she has sufficient strength.

Archives of Internal Medicine, Chicago

November 15, X, No. 5, pp. 405-520

28 *Influence of Radium and Its Decomposition Products on Ferments. T. R. Brown, Baltimore.
29 Pathologic Deviations in Chemistry of Uremic Blood. N. B. Foster, New York.
30 *Effect of Intraspinal Injections of Ringer's Solution in Different Amounts Under Varying Pressures. W. S. Carter, Galveston, Texas.
31 Two Cases of Anaphylactic Serum Disease Over Six Years After Primary Injection of Horse-Serum (Yersin's Antipest Serum). S. T. Darling, Canal Zone.
32 *Pathogenesis of Purpura Hemorrhagica with Special Reference to Part Played by Blood-Platelets. W. W. Duke, Kansas City, Mo.
33 Wassermann Test in Tropics. L. B. Bates, Canal Zone.
34 Poisoning by Nitric Oxid Fumes. F. C. Wood, New York.
35 *Organic Iodin Preparations; Their Pharmacology and Therapeutic Value. F. C. McLean, Portland, Ore.

28. **Influence of Radium on Ferments.**—None of the radium preparations used by Brown seemed to have any effect on the autolytic ferment of the liver, although saturated lead chlorid solution appeared to activate it; with diastase the very radio-active radium possessed an inhibiting effect, while the less active radium emanations had a stimulating effect, this increasing with the length of time and the amount of fluid used, while this ferment is also markedly activated by the salts in evaporated tap water; with pepsin Brown found a slight inhibiting effect, more marked with very radio-active radium, although slight in comparison with the inhibiting effect of saturated lead chlorid solution.

30. **Intraspinal Injections of Ringer's Solution.**—An experimental inquiry was made by Carter into the cause of the severe shock which sometimes follows the injection of serum into the subarachnoid space of the spinal cord. The sole object of his investigation has been to determine the mechanical effect on the spinal and medullary centers, of increasing the amount and pressure of fluid in the spinal subarachnoid space. For this purpose Ringer's solution has been used, as this contains the different inorganic salts of a real physiologic salt solution, and is therefore preferable to the isotonic solution of sodium chlorid commonly called by that name. He found that no definite limit can be fixed to which the intraspinal pressure may be increased with safety. In some animals serious symptoms developed when it was increased to 10 mm. of mercury, while in others this only occurred with a pressure of 50 or 60 mm. of mercury. The normal intraspinal pressure in dogs varies from 3 to 10 mm. of mercury, or 40 to 135 mm. of water. A sudden increase of pressure, even though a small amount be given, is more dangerous than a larger amount given gradually by gravity. The first mechanical effect of increasing the intraspinal pressure from injections made by lumbar puncture is the cessation of respiration; quickly following it, or coincidently with it, there is profound cardiac inhibition, which causes a tremendous and sudden fall of blood-pressure. The fall of pressure is often so abrupt that it frequently drops from normal to zero within a half minute. Atropin removes the cardiac inhibition and restores blood-pressure by its paralyzant effect on the cardio-inhibitory nerve center. Atropin fails to stimulate the respiratory center, while cocain is the most valuable respiratory stimulant for such an emergency.

Carter says that these drugs should be given together in full dose before making a spinal puncture or intraspinal injection. The injection at the site of spinal puncture would also produce local anesthesia. The condition could thus be prevented more easily than it can be remedied after alarming symptoms suddenly develop. This is particularly true if chloroform is used as an anesthetic, as the inhalation of chloroform in concentrated vapor produces similar effects and thus makes the condition more serious. The fall of pressure is not due to a vasomotor disturbance. There is, therefore, no indication for the administration of epinephrin. On the contrary, it is positively contra-indicated on account of its well-known action in producing cardiac inhibition. Lowering the intraspinal pressure by allowing fluid to escape from the needle, after the characteristic symptoms develop, fails to relieve the condition. The advantage of using atropin and cocain before intraspinal injections consists not only in lessening the dangers of sudden death, but it enables a larger amount of fluid to be injected without producing dangerous symptoms from the mechanical effect. This is a great advantage in administering antimeningococcus serum, as its action is chiefly a direct, local one on the living bacteria and the benefits are in proportion to the amount administered.

32. **Pathogenesis of Purpura Hemorrhagica.**—By comparing symptoms and blood findings in all patients observed during a period of three years, who displayed a pathologic tendency to bleed, Duke succeeded in picking out a certain group of cases which presents a characteristic clinical picture, which is due wholly or in part, it is believed, to an enormous reduction in the number of blood-platelets. The disease in its severer form almost constantly presents the following symptom-complex: 1. Purpura of one or two types—petechias or ecchymoses. 2. Hemorrhage from mucous membranes. 3. A tendency to bleed from every vascular lesion, no matter how produced. In consequence of this tendency, the bleeding time is very greatly prolonged, often exceeding two hours. 4. A normal coagulation time. 5. A firm blood-clot. 6. In consequence of the absence of platelets, a clot which does not retract and extrude serum. In all cases (seven) seen by Duke showing the above picture, the number of platelets was reduced almost to a point of absence. Counts were all below 10,000, and as a rule, below 1,000. (The normal platelet count varies from 200,000 to 400,000.)

The disease in its milder form presents a different picture. The most common symptoms in the milder cases are ecchymoses following slight injury and epistaxis. Sometimes neither purpura nor bleeding from normal mucous membranes appears and the only evidence of hemorrhagic diathesis in severe hemorrhage accounted for to a greater or less extent by local causes; for example, continued bleeding from intestinal ulcers, from esophageal varices, profuse and prolonged menstruation, etc. The bleeding time in the mild cases is sometimes normal and sometimes slightly or moderately prolonged. The coagulation time is normal, the clot firm, retractility diminished. The diagnosis rests on the finding of a reduced platelet count. It varied, in Duke's cases (six), from 20,000 to 65,000.

Hemorrhagic diathesis can be followed best in this disease by determining the bleeding time at frequent intervals. The simple observation of purpura, spontaneous hemorrhage, etc., may lead to false conclusions in regard to the general condition, for these symptoms are often due to general and local causes combined. When there was opportunity to make such observations it was noted that the disease appeared when the platelet count fell to an extremely low level, persisted so long as the count remained low and disappeared as soon as the count rose. The disease was relieved immediately in two cases by direct transfusion of blood. The relief was coincident with an increase in the platelet count, evidently a direct result of the transfusion. Symptoms returned when the platelet count fell again.

The disease was produced in rabbits by reducing the platelet count with diphtheria toxin. This disease appeared the day the platelet count descended to a point of almost complete absence and persisted until the platelet count rose. Hemorrhagic diathesis in mild form was brought about with repeated injections of benzol. In the latter experiments the count did not descend to such a low level as in the former. In a series of thirty-eight animal experiments, in which the platelet count was enormously changed with subcutaneous injections of benzol, diphtheria toxin and tuberculin, and also in a large series of cases in humans in which routine platelet counts were made, only those having extremely low counts gave the complete symptom-complex described above. Several platelet counts

between 40,000 and 75,000 were observed in patients who had no marked tendency to bleed. This seems to be the level at which patients may or may not have an abnormal tendency to bleed. No counts lower than these were observed in patients not subject to hemorrhage. The disease has been observed complicating a varied set of diseases—in severe form in lymphocytic leukemia, hemorrhagic small-pox, tuberculosis, nephritis, benzol poisoning, aplastic anemia and diphtheria. The one feature in common in these cases was the low platelet count and the modification of the clot dependent on it; i. e., absence of retractility. Purpura hemorrhagica of the type described would seem, therefore, a symptom, not a disease. It is caused apparently by any agent which reduces the platelet count to a sufficient degree.

35. **Organic Iodin Preparations.**—From evidence presented as to chemical nature, absorption and excretion, distribution, physiologic action and clinical results, McLean draws the following conclusions with regard to the therapeutic uses of the organic iodin compounds: Up to the present it has not been shown that the organic iodin preparations, with the exception of preparations of thyroid, have any specific action in pathologic conditions, except the action of iodin after separation from the molecule. The iodized proteins seem to be of advantage for therapeutic use only in so far as they avoid gastric irritation. The more stable compounds are apparently not entirely split in the body and are therefore not well utilized, while the less stable compounds have no advantages over the alkaline iodids, either as to local effects, or as to rapidity of absorption and excretion. The iodized fats and fatty acids appear to have some advantage when the continuous action of small amounts of iodin is desired. They are more slowly and evenly split, and the amount of available iodin in the blood does not vary from time to time to the extent that it does when the alkaline iodids are administered. The use of the iodized fats in such conditions as arteriosclerosis, bronchial asthma, lead-poisoning, etc., probably has some rational basis, therefore, on physiologic grounds. These substances are also as a rule non-irritant to the stomach. The difference in frequency of iodism is probably due to the difference in the amount of available iodin present in the body at any one time. When large amounts of iodin are desired, as in cerebrospinal syphilis, avoiding the danger of iodism would be at the sacrifice of therapeutic efficiency. The use of organic iodid preparations with toxic side actions, due to the molecule or its splitting products, should of course be discouraged. The products of iodin with the higher fats and fatty acids are generally free from toxic actions.

Boston Medical and Surgical Journal

December 5, CLXVII, No. 23, pp. 791-826

36 Heredity: with Special Reference to Law of Gregor Johann Mendel, O.S.A. J. M. Connolly, Boston.
37 Teeth and Their Relation to Body. G. H. Wright, Boston.
38 *Treatment of Pulmonary Tuberculosis by Artificial Pneumothorax, According to Method of Forlanini: Report of Twenty-One Cases. (To be continued.) G. M. Balboni, Boston.
39 Blood in Case of Severe Hemorrhage. J. E. Ash, Boston.
40 Fatal Endocarditis Due to Capsulated Gram-Staining Diplococcus, Occurring in Chains. W. H. Smith, Boston.

38. **Artificial Pneumothorax in Lung Tuberculosis.**—The eighteen months' experience Balboni has had in the treatment of pulmonary tuberculosis in its different stages by artificial pneumothorax has convinced him of its place in the treatment of this disease. He says that any one who has had any experience whatever with present methods of treatment for pulmonary tuberculosis must feel a moral obligation to try every new method that promises any degree of success at all, and it becomes a duty to do so when a method of treatment is presented by which good results have been obtained in advanced cases of phthisis.

It is to be hoped that with the necessary wisdom, the method will be applied on a larger scale and earlier in cases in which the spontaneous evolution shows a progressive and destructive tendency. Phthisiology is not so rich in resources as to justify overlooking a method of treatment that has given such good results.

Delaware State Medical Journal, Wilmington

November, III, No. 12, pp. 1-26

41 Homeopathy: Old and Modern. What Is Left of It. A. Robin, Wilmington.

Journal of Indiana State Medical Association, Fort Wayne

November 15, V, No. 11, pp. 465-504

42 *Tuberculosis in Children. T. V. Keene, Indianapolis.
43 *Tuberculin Treatment. T. Potter, Indianapolis.
44 *Home Treatment of Tuberculosis. W. T. S. Dodds, Indianapolis.
45 Brill's Disease. E. Charles, Summitville.

42, 43 and 44. Abstracted in THE JOURNAL, November 2, p. 1644.

Journal of Infectious Diseases, Chicago

November, II, No. 3, pp. 295-504

46 *Experimental Studies on Milk. E. H. Schorer, Boston.
47 *Study of Streptococci from Milk and from Epidemic Sore Throat, and the Effect of Milk on Streptococci. E. C. Rosenow, Chicago.
48 *Content in Antibodies of Normal Human Colostrum and Milk. R. Tunnicliff, Chicago.
49 *Studies on the Biochemistry and Chemotherapy of Tuberculosis. I. The Permeability of Tubercle for Iodid Compounds and Proteins. H. G. Wells and O. F. Hedenburg, Chicago.
50 *Id. II. Intravitam Staining of Tuberculous Guinea-Pigs with Fat-Soluble Dyes. H. J. Corper, Chicago.
51 Id. III. The Lipase of Bacillus Tuberculosis and Other Bacteria. H. G. Wells and H. J. Corper, Chicago.
52 *Production of Antirabic Immunity by Intraspinal Injections of Virus. D. L. Harris, St. Louis.
53 Natural and Induced Immunity to Typhus Fever. J. F. Anderson and J. Goldberger, Washington, D. C.
54 Immunization by Means of Cultures of Trypanosoma Lewisi. F. G. Novy, W. A. Perkins and R. Chambers, Ann Arbor, Mich.
55 *Influence of Certain Oxidizing Agents (Sodium Iodosobenzoate and Sodium Iodoxybenzoate) on Phagocytosis. A. Arkin, Chicago.
56 Application of the Complement-Fixation Reaction to the Diphtheria Group of Organisms. M. E. Morse, Boston.
57 Studies on Hog Cholera. Experimental Hyperimmunization. W. E. King and R. H. Wilson, Detroit.
58 Production in Vitro in the Normal Brain of Structures Simulating Certain Forms of Negri Bodies. E. Steinhardt, D. W. Poor and R. A. Lambert, New York.
59 Bovine Infectious Abortion, Epizootic Among Guinea-Pigs. F. M. Surface, Lexington, Ky.
60 *Intraleukocytic Bodies in Scarlet Fever. D. J. Glomset, Chicago.
61 Phagocytic Activity of the Leukocytes in Measles. R. Tunnicliff, Chicago.
62 *Action on Dogs of Toxic Substances Obtained from Virulent Pneumococci and Pneumonic Lungs. E. C. Rosenow and A. Arkin, Chicago.

46. **Experimental Studies on Milk.**—The results of Schorer's extensive and detailed studies on milk may be summarized as follows: Better classes of milk contain little sediment, market milks contain more dirt but fewer cells than certified milks. The Tromsdorff tube is a convenient method of examining for dirt and cells. It is relatively easy to produce milk of low bacterial content, but the greatest care must be constantly exercised to prevent occasional high counts. Increase in bacterial content was more rapid at the higher temperatures, and at a temperature just above freezing there was little bacterial multiplication until after the seventh day, but from that time on the increase was rapid. Cream on rising carries with it a large portion of the bacteria in milk. Separator cream does not take with it as large a portion of the bacteria as does gravity cream. When milk was stored and the cream and skimmed milk were not remixed, bacterial multiplication was not as great during the same period of storage as when the milk was mixed repeatedly. Of the bacteria in good milks about 30 per cent. were acid-producers, while 20 per cent. of those in inspected and 30 per cent. of those in certified and pasteurized milks were protein-digesters. At the higher temperatures fermenting organisms increased more rapidly in certified milk, but at the lower temperatures the most marked increase was observed in pasteurized milk. The percentage of peptonizing types increased only at low temperatures. Apparently gravity cream contains the larger portion of peptonizing forms, while the skimmed milk below contains most of the fermenting forms when milk has been refrigerated.

On long storage butyric acid and putrefactive odors became marked. When milk was stored at low temperatures the development of putrefactive odors may not have been preceded by acid odors. If milk is stored for a long time the protein of certified and pasteurized milks may be entirely broken down. Protein decomposition without coagulation occurred princi-

pally at a temperature near the freezing point. Adding an equal part of 68 per cent. alcohol to milk is an easy and reliable test for the detection of beginning acidification. The fear of putrefying organisms in pasteurized milk is not warranted as far as market milk pasteurized by the holding method is concerned. While predominance of putrefying bacteria is not the only objection to pasteurized milk, it has been an important one. Certified milk, because it contains but little cow manure, is infected principally with spore-bearing organisms, it is always well refrigerated, and contains as large a percentage of protein-digesting and no more acid-forming bacteria than does pasteurized milk. The cleanliness necessary to produce certified milk is so imperative and the variation in the production and pasteurization of ordinary market milk is so marked, that certified and pasteurized milks are most variable. Inspected milk is apparently more uniform in numbers and kinds of bacteria.

47. **Milk Streptococci.**—Streptococci, virulent for animals, but which differ from typical *Streptococcus pyogenes* in a more abundant growth, in being encapsulated and not forming chains and in causing but little hemolysis, Rosenow says occur in predominating numbers in epidemic sore throat of milk-borne origin. On artificial cultivation these strains sooner or later assume the characteristics of *Streptococcus pyogenes*. By placing *Streptococcus pyogenes* in unheated milk it becomes modified so as to correspond to the streptococci in epidemic sore throat. The modifications may be accentuated by passage through guinea-pigs, and in some cases cultures like those of streptococcus mucosus may result. The fact that milk so modifies streptococci is an additional indication of the important part it may play in epidemic sore throat. It is not possible to determine whether the streptococci in such epidemics are of exclusively bovine or human origin; they may be of both. Milk drawn in a sterile way from normal cows may contain virulent streptococci and pneumococci; hence, "certified milk," while surely less contaminated than ordinary milk, may contain pathogenic bacteria, and the advisability of pasteurization even in this case should be considered, especially during seasons when sore throat is common. Butter and cream may contain virulent streptococci.

48. **Antibodies in Colostrum and Milk.**—From her experiments, Tunnicliff concludes that normal human colostrum-milk contains more opsonins for the streptococcus, staphylococcus and tubercle bacillus than does the later milk, but less than the blood-serum. Since this is true, it would seem of great importance that the newly born infant should receive colostrum-milk.

49. **Biochemistry of Tuberculosis.**—The authors' systematic consideration of the chemotherapy of tuberculosis rests on an investigation of the permeability of both the tubercle bacillus and the tuberculous lesion for chemical substances of different characters. It is shown that compounds of iodin injected into tuberculous animals enter glandular tubercles with readiness, so that the proportion of iodin in such tubercles is usually greater than it is in most other tissues except the kidney; furthermore, it is greater in the caseous contents than in the cellular peripheries of the tubercles. Tuberculous eyes usually contain much more iodin than their normal mates. This property is shown not to depend on any specific character of the tubercle itself, for other necrotic tissues also take up more iodin than normal tissues. The explanation offered is that normal cells are not perfectly permeable to iodids (except perhaps kidney cells) and lose this impermeability or semi-permeability when killed or injured, thus becoming entirely permeable for crystalloids present in the surrounding fluids. As the iodin content of the blood increases and decreases with absorption and elimination, so the iodin in the necrotic area, whether tuberculous or otherwise, varies, indicating an absence of any chemical or physical binding of the iodin in such areas. A simple, inert, colloid agar, implanted in the tissues, behaves in quite the same way. Egg albumin injected into tuberculous pigs is found, by means of the anaphylaxis reaction, to penetrate the avascular tubercules but little if at all, even when present in the blood in large amounts. This agrees with the hypothesis that the passage of iodin from the blood into the tubercles is a purely physical matter, the crystalloidal iodin compounds diffusing through the inert colloidal solution of a necrotic area practically unimpeded, while the colloidal egg albumin, according to the law of colloidal diffusion, is practically unable to diffuse through such a colloidal solution. No evidence could be found of any tendency for iodin compounds of whatever nature to accumulate in tubercles or other necrotic areas, or to persist in such areas when disappearing from the normal tissues and the blood.

50. **Tuberculous Guinea-Pigs and Fat-Soluble Dyes.**—Fat dyes administered by Corper under various conditions to guinea-pigs with tuberculosis never were found within the tubercles. This is in favor of the view that the fats of the tubercle are derived from the intracellular fats of the tissues forming the tubercle, and not from food fats or transported depot fats. Tubercle bacilli within tubercles in such animals do not become stained with the fat stains. Saturation of the animal with common fat dyes has no noticeable influence on the course of a tuberculous infection in the guinea-pig. The fat stains employed in these experiments (Sudan III, scarlet R., Sudan yellow, Sudan brown, Nile blue sulfate) were never found to stain any but depot fats, not being present in the parenchymatous cells whether normal or diseased. They caused no apparent harm to the guinea-pigs even after being fed to them over 200 days. Subcutaneous or intraperitoneal injection of fat dyes dissolved in fats and oils is much less effective in staining the depot fats, than is feeding the stained fats. Fat dyes do not pass through the guinea-pig placenta to the fetus, or at least the fat of embryo pigs from stained mothers is not stained (corroborating the result of the Gages, Mendel and Daniels). The embryos often show extremely fatty but unstained livers. Fat dyes were never observed to pass into the milk of lactating guinea-pigs, although positive results have been obtained by others.

52. **Antirabic Immunity.**—Harris' experiments seem to show that it is comparatively easy to immunize rabbits against rabies by a single intraspinal injection of non-infective desiccated "virus," and that the resulting immunity is acquired with surprising rapidity, and is not followed by any ill results.

55. **Oxidizing Agents and Phagocytosis.**—Sodium iodoxybenzoate, which contains 11.43 per cent. of physiologically active oxygen, Arkin found, has a markedly stimulating action on the phagocytosis of streptococcus and staphylococcus by human leukocytes in the presence of human serum, *in vitro*. Sodium iodbenzoate, which contains no oxygen, has no such effect. This stimulating effect on phagocytosis is related to its germicidal action, which is also dependent on the oxygen combined with the iodin in the molecule. Arkin ventures to express the opinion that the opsonin of the serum is probably rendered more active by the oxygen-containing substance, for the stimulating effect is exerted only in the presence of serum. Therefore, sodium iodoxybenzoate may be of value in some infections because of its stimulating effect on the production of antibodies and on phagocytosis, as well as its bactericidal action. Furthermore, a relationship is suggested between oxidation and the process of phagocytosis, for a substance which liberates oxygen readily stimulates phagocytosis, whereas a substance which prevents oxidation reduces phagocytosis.

60. **Intraleukocytic Bodies in Scarlet Fever.**—Glomset claims that bodies in the leukocytes like those described by Döhle occur in many febrile diseases, and in smaller numbers in other diseases, and even in health. The larger part of these bodies are of nuclear origin, and may be produced by shaking the blood. He does not believe that it is justifiable to regard them as having any etiologic significance.

62. **Toxic Substances from Pneumonic Lungs.**—The action of the toxic substances obtainable from pneumococci and pneumococcus exudates on the blood-pressure and respiration in normal dogs is said by the authors to be identical and strikingly like that which is observed in immediate anaphylaxis in dogs. Pneumococcus anaphylaxis in dogs does not essentially differ from protein anaphylaxis in general. The lesions are also similar. The hemorrhages, the effect on the respiration,

the extreme grade of cyanosis, especially in the fatal cases, the delayed coagulation of the blood and the presence of carbon dioxid in the stomach indicate that one of the chief effects of the toxic substances is an interference with the normal oxidative processes. The toxic substances concerned are probably of the same general nature because the lesions and the effect on the circulation and respiration are so similar, and it makes no essential difference whether they are formed *in vitro*, in the consolidated lung in man, at once in sensitized dogs, or at a later period in normal dogs.

Kentucky Medical Journal, Bowling Green

November 1, X, No. 21, pp. 833-852

63 Medicine and the Profession in Kentucky. O. Hancock, Henderson.
64 Tuberculosis Work in Europe. J. W. Pettit, Ottawa, Ill.
65 Constipation. J. C. McCreary, Cave City.
66 Rheumatism in Children. J. F. Dunn, Arlington.

November 15, X, No. 22, pp. 853-884

67 Use of Rheumatism Phylacogen in Chronic Rheumatism. E. B. Richey, Louisville.
68 Treatment of Erysipelas with Phylacogens. W. A. Jenkins, Louisville.
69 Mixed Infection Phylacogen. E. S. Allen, Louisville.

Medical Record, New York

December 7, LXXXII, No. 23, pp. 1017-1062

70 Sanitary Conquest of Philippines. L. M. Maus, U. S. Army.
71 Chest and Abdominal Measurements in Relation to Build. F. S. Weisse, New York.
72 Appendicitis in Infancy and Early Childhood. C. G. Cumston, Boston.
73 After-Treatment of Syphilis. E. G. Ballenger and O. F. Elder, Atlanta, Ga.
74 Le Charlatanisme de L'Exactitude. W. B. Konkle, Montoursville, Pa.
75 Paralysis of Right Recurrent Laryngeal Nerve from Accidental Trauma. D. B. Delavan, New York.
76 Case of Acute Bulbar Palsy, with Autopsy and Histologic Findings; Type: Anterior Poliomyelitis. A. Wiener, New York.
77 Psoriasis: a Neurosis. W. P. Cunningham, New York.

New Mexico Medical Journal, Las Cruces

November, IX, No. 2, pp. 31-50

78 Medicophysicolegal Question. C. F. Beeson, Roswell.
79 An Ideal Medical Practice Act. H. B. Kauffman, Albuquerque.
80 Dilatation of Stomach. F. D. Garratt, El Paso, Texas.
81 Ileus. J. H. Wroth, Albuquerque.

New York Medical Journal

December 7, XCVI, No. 23, pp. 1153-1204

82 Tendencies of Modern Physiologic Discipline in Medical Schools. J. C. Hemmeter, Baltimore.
83 Spinal Ataxia in Aged. C. W. Burr, Philadelphia.
84 Ocular Manifestations of Angiosclerosis. D. F. Harbridge, Philadelphia.
85 Newer Teachings of Diseases of Alimentary Canal. M. I. Knapp, New York.
86 Gonorrheal Arthritis. G. A. Holliday, Pittsburgh.
87 Residual Ear. D. G. Yates, New York.
88 Intestinal Obstruction and Volvulus Complicating Pregnancy. M. A. Flower, New York.
89 Relations Between Doctor and Patient. H. Rabinowitsch, New York.
90 Education and Training of Feeble-Minded Children in Public Schools. A. W. Edson, New York.

Ophthalmic Record, Chicago

November, XXI, No. 11, pp. 577-638

91 Case of Juvenile Form of Family Amaurotic Idiocy. H. Gifford, Omaha, Neb.
92 Modification of Prince Advancement Forceps. F. Allport, Chicago.

Pennsylvania Medical Journal, Athens

November, XVI, No. 2, pp. 85-170

93 *Physiology of Heart. C. C. Guthrie, Pittsburgh.
94 Instruments of Precision. H. G. Schleiter, Pittsburgh.
95 *Auricular Fibrillation. J. E. Talley, Philadelphia.
96 *Infectious Febrile Heart. G. W. Norris, Philadelphia.
97 *Digitalis. M. H. Fussell, Philadelphia.
98 History of Digitalis. J. W. Boyce, Pittsburgh.
99 Present Status of Cataract Operation. S. D. Risley, Philadelphia.
100 Present Status of Arsenic Treatment of Syphilis. E. Martin, Philadelphia.
101 *Medical Expert Testimony from Legal Standpoint. F. F. Kane, Philadelphia.
102 *Medical Expert Testimony from Medical Standpoint. E. X. Dercum, Philadelphia.
103 Cervical Adenitis, with Special Reference to Roentgen-Ray Method of Treatment. G. M. Dorrance, Philadelphia.

93, 95, 96, 97, 101 and 102. Abstracted in THE JOURNAL, October 26, pp. 1565 and 1566.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

November 23, II, No. 2708, pp. 1429-1504

1 *Avenues of Rheumatic Infection, Based on Examination of Seventy-Five Cases of Sydenham's Chorea. W. P. S. Branson.
2 *Possible Test in Differentiation Between Human and Bovine Types of Tubercle Bacillus. J. Fraser.
3 Soil and Seed in Tuberculosis. H. Sutherland.
4 Rat-Bite Fever, with Report of Case. R. W. Cruickshank.
5 Ruling Habit Strong in Death. C. H. W. Parkinson.
6 Diagnosis and Treatment of Compression Paraplegia. E. S. Reynolds.
7 Tumor of Anterior Part of Corpus Callosum Extending Into Left Frontal Lobe: Motor Apraxia. J. M. Clarke.
8 Nature and Treatment of Epilepsy. W. Alexander.
9 Use of Brain Extract in Treatment of Various Forms of Insanity. W. M. Smith.
10 Results of Wassermann Reaction in 150 Cases of Mental Disease. D. Nabarro.
11 Nature of Dementia Praecox. I. McKenzie.
12 Reeducation of Attentive Control. H. C. Miller.
13 Nuclei of Neutrophil Cell in Acute Insanity. C. McDowall.
14 Operation for Webbed Fingers. A. H. Tubby.
15 Some Principles in Treatment of Lateral Curvature of Spine by Exercise. J. S. Smith.
16 Psychasthenia. A. T. Schofield and R. M. Leslie.

1. **Avenues of Rheumatic Infection.**—Sydenham's chorea and rheumatic fever in Branson's opinion are due to one and the same infecting agent. The action of the rheumatic poison on a specifically predisposed central nervous system, he says, produces a characteristic nervous instability which may precede the appearance of choreic movements by some weeks, and may in other cases itself constitute the sole evidence of the choreic tendency, the phase of movements never becoming developed at all. The emergence of choreic movements is determined by emotional stimuli acting on a central nervous system thus previously disequilibrated. The commonest avenue of rheumatic infection is the tonsil, and next to it the nose. The first essential of rational treatment, of rheumatic infection is restoration of the upper air passages to a healthy condition. Irrigation and thorough cleansing of the nasal passages, combined with antiseptic treatment of the nose and pharynx, should be a routine item of antirheumatic treatment; and the operation of enucleation should be performed without delay on all rheumatic children who exhibit chronic enlargement of the tonsils or of the tonsillar lymphatic glands. Chorea is a common sequel of scarlet fever, but the appearance of movements is usually postponed until the patient has left the fever hospital.

2. **Human and Bovine Tuberculosis.**—The most reliable test which we possess in the process of differentiation between human and bovine tubercle bacilli is the inoculation of certain animals (most commonly the rabbit or the calf) with a small known quantity of the organism under investigation. If the infection results in a rapid dissemination of the disease and the speedy death of the animal, Fraser says it may be affirmed that the bovine bacillus is the organism present. If, on the other hand, the resulting lesions are few and tending to be retrogressive and death ensues after a very considerable interval of time, or from some intercurrent disease, the infection may be classified as human. A distinction can be drawn between human and bovine bacilli by the local reaction, as well as by the general reaction produced in these animals. The difficulty lies in appreciating the degree of local reaction.

Fraser has found that the ideal situation in which to demonstrate such is the synovial membrane, and more especially the synovial membrane of the knee-joint of the rabbit. By the degree of reaction, clinical and pathologic, consequent on inoculation of the joint with a small quantity of bacillary emulsion he can differentiate between the human and the bovine types of tubercle bacilli. The test is best demonstrated when an emulsion of the bacilli is injected into the part, but it may be carried out with pus or other pathogenic fluid; it is essential, however, that no mixed infection be present. The sequelae are distinct. If the human bacillus is introduced, there are few resulting changes; the synovial membrane becomes slightly thickened, and there is some excess of fluid in the joint, there is no degree of stiffness and no joint pain; the animal continues to put on weight or remains constant. If the joint is examined three or four months later, there is found

to be a chronic synovial tubercle. It is rare to find any degree of disease in the bones or articular cartilages or throughout the body. When, on the other hand, the bovine bacillus is injected, the changes are rapid and acute. About ten days after inoculation the animal becomes crippled, the joint becomes swollen and painful, the limb takes up a permanently flexed position; there is a progressive and continuous loss of weight. Examination of the joint three to four weeks after inoculation shows the presence of acute synovial tubercle; the interior of the joint is full of caseous debris, the articular cartilages are eroded; there are foci in the neighboring bones and throughout the body the lungs, spleen and kidneys are diseased. The results of fifteen applications of the test are given.

Journal of Obstetrics and Gynecology of British Empire, London

October, XXII, No. 4, pp. 191-244

17 *Gelatinous Glandular Cysts of Ovary and So-Called Pseudomyxoma of Peritoneum. T. Wilson.
18 Artificial Feeding of Small and Premature Infants. J. Wyatt.
19 Traumatic Rupture of Uterus with Prolapse of Intestines Into Vagina Followed by Chronic Intestinal Obstruction; Operations; Recovery. C. Noon.
20 Dermoid Tumor of Both Fallopian Tubes. J. N. Stark.
21 *Case in Which Torsion of a Hydatid of Morgagni During Pregnancy, Without Torsion of Tube or Ovary, Caused Urgent Symptoms. H. R. Andrews.

17. **Pseudomyxoma Peritonei.**—Wilson has met with six typical cases of pseudomyxoma of the peritoneum. To the end of 1911 he had operated on 331 patients with tumors of the ovary, among which were included 144 glandular pseudomucinous cysts. In addition to the six cases of typical pseudomyxoma there have been among the 144 glandular cysts five others in which the contents have been gelatinous, although there has been no extensive effusion into the peritoneal cavity. There was a marked difference from the class of patient in whom pseudomyxomatous peritonitis was found. In most of the cases a certain quantity, usually small, of free soapy exudation was present in the peritoneum, although no rupture or perforation of the cyst could be made out. One of the cases is of peculiar interest, in that after removal of a right-sided cyst, a second one grew in the left ovary to the weight of three pounds within five months; the left ovary had been observed at the first operation to be shriveled and senile in appearance. The second cyst had burst, discharging a large quantity of mucoid fluid into the peritoneal cavity. Both cysts were proved by the microscope to be simple glandular in structure. This case was further of interest in that the patient had a fibromyoma and later developed carcinoma of the body of the uterus, of which the first symptom appeared within a year of the second ovariotomy, the patient dying about six years later. The removal of the two ovaries caused regression of the fibroid, but did not prevent the subsequent malignant development in the uterus, an important condemnation of the operation of double oöphorectomy for uterine fibroid.

21. **Torsion of Hydatid of Morgagni.**—Tenderness just above and internal to the right anterior superior spine, pain and abdomen distention were the subjective symptoms in Andrew's case. On opening the abdomen and exploring the right iliac fossa a small purple body came into view, which was at first thought to be a gangrenous appendix, but was found to be attached to the fimbriated extremity of the right fallopian tube. It was about 2 inches long, ¾ of an inch thick and was constricted in the middle of its length. It had the appearance of being some soft structure which had become deeply congested and then become practically solid as the result of thrombosis. The tube, ovary and appendix were healthy and normal. The small purple body was removed after its attachment to the fimbriated extremity of the fallopian tube had been ligatured with catgut. Nothing abnormal was found in the abdomen except that the uterine wall appeared to be very thin. Under the microscope the piece of tissue was found to consist of a thin-walled cyst with some lymph on its surface, the interior filled up with blood-clot. It was apparently a twisted hydatid of Morgagni, which could not have been larger than a small grape before torsion occurred.

Lancet, London

November 23, II. No. 4656, pp. 1415-1484

22 *Cardiovascular System in Pulmonary Tuberculosis. R. D. Powell.
23 Clinical Significance of Different Forms of Regular Tachycardia. T. Lewis.
24 Occurrence of Cholera Vibrio in Biliary Passages. E. D. W. Greig.
25 Major Leonard Roger's Method of Treatment of Asiatic Cholera. J. W. D. Megaw.
26 Erythremia. J. Parkinson.
27 Varieties and Treatment of Lateral Curvature of Spine. R. C. Elmslie.
28 Purpura Fulminans. J. A. M. Cameron.
29 *Jejunostomy in Combination with Anterior Gastro-Enterostomy in Treatment of Chronic Gastric Ulcer. E. T. Tatlow.
30 Dangers of Electricity from Clinical, Forensic and Hygienic Points of View. S. Jellinek.

22. **Pulmonary Tuberculosis.**—In Powell's opinion consumptives on the whole have a much better circulation than they are given credit for, their hearts are relatively good, and a low blood-pressure in them is mainly attributable to depressed cardiac function from excessive absorption of bacterial products. It is very rare, even in acute cases, to meet with anything approaching the heart failure so often observed in enteric fever or diphtheria, although it may be witnessed after excessive doses of tuberculin. In some cases of advanced but quiescent phthisis one meets with great irritability of the heart, with attacks of palpitation or disturbed action easily provoked by exertion, emotion, or dyspepsia, disturbances attended with great distress, sometimes with almost anginal suffering. These, Powell says, are cases of one-sided disease, usually the left side, in which the lung has become extremely damaged, with considerable cavitation, and has then in the healing process become fibroid and contracted, with dense thickening of the pleura. The margin of the lung recedes from the surface of the heart, leaving the pericardium exposed directly beneath the flattened chest wall. The chest wall is drawn in, the diaphragm drawn up; the heart, displaced to the left and upward, is closely surrounded on three sides by dense unyielding structures; while the opposite healthy lung is compensatorily enlarged and extends beyond the median line. In right-sided cases the heart assumes a more vertical position than natural, and is drawn to the right and upwards. The heart is thus cramped on all sides in a restricted chamber with rigid parietes, instead of being surrounded by resilient structures whose peripheral influence is aspiratory to its cavities.

The marginal zone surrounding the tuberculous caseous center of a tubercle contains tubercle bacilli which are active or sluggish according to the activity of the disease. In chronic and quiescent cases they are still there, secreting toxins in a more or less languid manner, and an area of bacillary infiltration surrounding each focus may thus be regarded as charged with stagnant bacterial products which may not get at all into the general circulation, or so gradually and in such small quantities as to cause little or no constitutional disturbance. But if in such patients one replaces quietude by activity, or moderate activity by harder labor, two things are accomplished: (1) the circulatory activity and blood-pressure in these perifocal zones is raised, hastening the blood-currents and the lymph streams, and so bring about increased absorption of the bacillary products; and (2) increased disturbance in these areas is further caused by increased movement of the lungs from the hurried breathing. It is by these mechanisms combined, but principally the vascular disturbance, that autoinoculation is brought about in tuberculosis and it was after this fashion that Paterson explained what he had previously found by careful observation, that by graduated labor in the sanatorium at Frimley he could bring about certain regulated degrees of auto-inoculation, and so obtain gradual immunity in tuberculosis by progressive stimulation of phagocytic action and of other agencies antagonistic to the bacillus.

29. **Jejunostomy in Chronic Gastric Ulcer.**—The following are the steps of the procedure carried out by Tatlow. The stomach is clamped as in the ordinary operation, a loop of 18 inches of jejunum is then picked up and an anterior vertical anastomosis performed. The proximal loop of jejunum is then divided near the anastomosis and implanted into the portion of the jejunum leaving the gastro-enterostomy, the distal cut end near the anastomosis being first closed, thus completing

the modified anterior gastro-enterostomy in Y. The loop of jejunum coming from the duodeno-jejunal flexure to form one limb of the Y is now taken, and at a point two or three inches above the Y, on the side of bowel remote from the mesentery, a small longitudinal incision is made into the lumen of the gut, and a No. 14 rubber catheter is introduced. This is fixed in position by a 000 catgut suture, taking in all the coats of the bowel and the catheter, which is then passed well down into the jejunum beyond the anastomosis. Then a series of interrupted Pagenstecher sutures is used so as to enfold the catheter in a trough of jejunum as in a Witzel gastrostomy, care being taken not to stenose the anastomosis. The line of suture is then fixed to the anterior abdominal wall by a single stitch at each end, and the abdominal wound is closed tightly round the catheter, which projects about 5 or 6 inches.

Quarterly Journal of Medicine, London

October, VI, No. 21, pp. 1-124

31 *Catarrhal Jaundice, Sporadic and Epidemic, and Its Relation to Acute Yellow Atrophy of Liver. E. A. Cockayne.
32 *Action of Diastase in Diabetes Mellitus. O. T. Williams and P. M. Powell.
33 *Action of Vagus on Human Heart. W. T. Ritchie.
34 *Investigations on Gastric Juice in Malignant Diseases of Stomach and Duodenum. S. B. Schryver and C. Singer.
35 *Influence of High Temperature on Protein Metabolism with Reference to Fever. G. Graham and E. P. Poulton.

31. **Catarrhal Jaundice, Sporadic and Epidemic.**—Most epidemics of jaundice, in which the possibility of yellow fever, relapsing fever, and malaria have been excluded, according to Cockayne, are due to infectious jaundice or epidemic catarrhal jaundice. Infectious jaundice or Weil's disease is in all probability due to the ingestion of contaminated water or food, but may be due to some biting insect. Epidemic catarrhal jaundice is air-borne. Epidemic catarrhal jaundice is much the commoner disease and is of almost world-wide distribution; infectious jaundice is met with chiefly round the Mediterranean Sea, and does not extend to the British Isles. Simple catarrhal jaundice, usually attributed to gastro-duodenal catarrh, of varying origin, is the sporadic or endemic form of epidemic catarrhal jaundice, except in a comparatively small number of cases. Acute yellow atrophy of the liver in the great majority of instances is due to the same organism acting on a liver weakened by some temporary strain, such as pregnancy, or having some inherent weakness. A similar condition may be produced by syphilis, infectious jaundice, and other infections, but much less often. Sporadic and epidemic catarrhal jaundice and acute yellow atrophy of the liver are due in the great majority of cases to the same cause, a specific organism of unknown nature.

32. **Action of Diastase in Diabetes Mellitus.**—In the prolonged daily study of cases of diabetes treated with diastase Williams and Powell have been unable to observe any beneficial effects which could be attributed to it. In cases which responded markedly to a course of oatmeal given as advocated by von Noorden, no such effect can be obtained by any preparation of diastase they used. If there is any specific body in oatmeal which has an effect on carbohydrate metabolism, they are convinced that it is not a diastase ferment.

33. **Action of Vagus on Human Heart.**—The action of the vagi on the human heart, Ritchie says, is closely comparable to that of the vagi on the heart of other mammals. Compression of the right vagus may depress the rate and strength of the auricular beats, may prolong auricular systole, and may depress the conductivity of the auriculo-ventricular bundle system. The inhibitory effects of the vagus on the human auricles ensue gradually, and usually pass off gradually while the compression is still being maintained. Compression of the right vagus has not depressed the excitability of the human auricular muscle when in fibrillar contraction or in flutter. Depression of conductivity is probably an important factor in the production of fibrillation in the human heart. In three cases of complete auriculo-ventricular dissociation the vagi had no apparent influence on the ventricles. In hearts with a normal rhythm and good conductivity in the auriculo-ventricular bundle system, vagus compression may depress the rate and contractility of the ventricles, and less frequently may prolong the duration of ventricular systole. The depression of ventricular rate is usually proportionate to the degree of auricular retardation. In some instances the auricles escape from vagus inhibition before the ventricles; in others ventricular standstill may perhaps terminate by the occurrence of idio-ventricular contractions. Extra-systoles may occur during the escape of the heart from vagus inhibition. The inhibitory effects of left vagus compression are as a rule less effective than those of right vagus compression, and the latter are almost uniformly the reverse of those induced by atropin.

34. **Gastric Juice in Malignant and Non-Malignant Diseases.**—The authors found that in about 6½ per cent. of cases of grave gastric disorder a ferment is present in the gastric juice capable of hydrolysing Witte's peptone. This abnormal ferment is of unknown origin. Apparently, however, it is derived neither from the duodenal secretion nor from the saliva, but from the stomach itself. It has been detected only in cases with severe dyspeptic symptoms. The gastric juices in which the ferment has been detected have been uniformly characterized by their poor hydrochloric acid content and low or absent peptic power. In most of the cases, moreover, an extremely low gastric secretory power has been suggested by the small amount of chlorids present. The abnormal ferment is neither peculiar to nor characteristic of gastric carcinoma. In the majority of cases in which carcinoma was undoubtedly present the peptolytic ferment was absent. The commonest condition associated with the ferment appears to be gastric dilatation with atrophy of the walls of the stomach and thinning of the mucous membrane. This condition was present in at least seven of thirteen cases and in two that came to post-mortem.

35. **Influence of Temperature on Protein Metabolism.**—A rise of body temperature to 104.3 F. (40.2 C.) did not, in the authors' experiments, by itself cause any breakdown of the proteins of the body. If a diet of very high calorie value is taken, which contains a large excess of carbohydrate but a minimal quantity of protein, non-nitrogenous substances supply the whole of the increased energy production set up by the high temperature. If a diet of ample calorie value is taken, which contains practically no carbohydrates but a large excess of protein, the fat metabolism is increased, but it is probable that the protein metabolism also takes a small share in the increased energy production set up by the high temperature. If a diet of insufficient calorie value is taken, which contains practically no carbohydrates but a fair amount of protein, the fat metabolism is probably greatly increased, but the protein metabolism takes no share in the increased energy production set up by the high temperature.

Annales de Médecine et Chirurgie Infantiles, Paris

October 15, XVI, No. 20, pp. 609-640

36 *Anemia of Alimentary Origin. A. Czerny.

November 1, No. 21, pp. 641-672

37 Anemia in Infants. L. Tixier. Commenced in No. 20.

36. **Anemia of Alimentary Origin in Infants.**—Summarized in the Paris Letter, Nov. 30, 1912, p. 1986.

Archives des Maladies de l'App. Digestif, Paris

October, VI, No. 10, pp. 541-600

38 Liver Abscess in Amebic Dysentery. (Les abcès du foie dans la dysentérie amibienne autochtone.) A. Cade, L. Thévenot and Roubier.
39 Serodiagnosis of Gastric Cancer. (Le diagnostic biologique du cancer de l'estomac par les méthodes récentes.) E. Enriques and M. P. Weil.

Archives de Médecine des Enfants, Paris

November, XV, No. 11, pp. 801-880

40 Marbling of the Skin in Children. (La livedo chez les enfants.) J. Comby.
41 Urea in the Cerebrospinal Fluid in Infants. Nobécourt, Sévestre and Bidot.

Bulletin de l'Académie de Médecine, Paris

November 5, LXXVI, No. 37, pp. 357-376

42 Direct Transfusion of Blood for Hemorrhage from Gastric Ulcer. A. Netter, Desclaux and Guilbaut.
43 Orthopedic Inspection of School Children. (Prophylaxie des difformités physiques chez les enfants. L'inspection orthopédique scolaire de la ville de Bordeaux.) E. Kirmisson.

Journal de Chirurgie, Paris

September, IX, No. 3, pp. 273-428

44 *The Thymus in Exophthalmic Goiter. (Le thymus des basedowiens.) C. Lenormant.

44. The Thymus in Exophthalmic Goiter.—Lenormant does not agree with those who regard hypertrophy of the thymus as in itself a special danger in exophthalmic goiter. The thymus is frequently unduly large in all forms of exophthalmic goiter, but this is not a constant occurrence. When hypertrophy of the thymus is associated with hypoplasia of the adrenals, the resulting instability of the cardiovascular system may be a dangerous feature of the clinical picture. The general principles for operative treatment of exophthalmic goiter need not be modified on discovery of hypertrophy of the thymus. The thymus is of far less importance than the thyroid from every point of view in exophthalmic goiter.

Journal de Médecine de Bordeaux

October 20, XLII, No. 42, pp. 661-676

45 Chronic Adrenal Insufficiency; Three Cases. (Maladie d'Addison.) C. Mongour.

October 27, No. 43, pp. 677-692

46 Retro-Uterine Hematocele from Rupture of Ovarian Hematoma. A. Charrier.

47 *Congenital Varices. C.-Boisse.

47. Congenital Varices.—One of the patients was an infant, the other a girl of 18. The congenital dilatation of the veins in the latter case had grown more pronounced in time and finally induced pain as actual small angiomatous tumors developed. The right leg was involved and an elastic stocking kept the condition stationary. The infant's trouble was more a diffuse angioma of the entire right arm.

Lyon Médical, Paris

November 10, XLIV, No. 45, pp. 761-808

48 Estimation of Arterial Pressure. (Pression systolique oscillatoire ou palpatoire.) L. Gallavardin.

Presse Médicale, Paris

November 9, XX, No. 92, pp. 929-940

49 Neurotomy to Relieve Pain in Laryngeal Tuberculosis. (La neurotomie du nerf laryngé supérieur dans la dysphagie des tuberculeux.) A. Chaillier and P. Bonnet.

50 Ozena and Tuberculosis. R. Leroux.

November 16, No. 94, pp. 949-960

51 Polyuria with Chronic Nephritis. (La polyurie paradoxale de la néphrite interstitielle; diagnostic de la sclérose rénale.) A. Martinet.

Semaine Médicale, Paris

November 20, XXXII, No. 47, pp. 553-564

52 Excessive Tonus of the Vagus System. (La vagotonie.) L. Cheinisse

Archiv für klinische Chirurgie, Berlin

XCIX, No. 3, pp. 597-877. Last indexed November 9, p. 1751

53 *Resection of Cancerous Stomach. (Mittheilung zur Technik der Magenresection beim Carcinom.) G. Kelling.

54 Operative Treatment of Fractures. E. W. H. Groves.

55 *Operative Treatment of Elephantiasis. (Lymphangioplastik bei Elephantiasis.) W. N. Rosanow.

56 Fracture of Distal End of Tibia. (Ueber Absprengungsfracturen am vorderen und hinteren Abschnitt des distalen Endes der Tibia, mit Berücksichtigung der Rissfracturen.) S. König.

57 *Operative Treatment of Ankylosis of the Knee. (Operative Behandlung von Kniegelenksankylosen.) E. Payr. (Experimentelle Beiträge zu operativen Mobilisirung ankylosirter Gelenke.) M. Sumita.

58 Causes of Recurrence After Operative Treatment of Inguinal Hernia. (Ursachen der Recidive nach Radicaloperation des Leistenbruches.) E. Polya.

53. Resection of Cancerous Stomach.—Kelling has long been preaching that the experiences to date show that infection of the tissues around from the infectious contents of the cancerous stomach is by far the most important factor in development of complications afterward, whether they take the form of pneumonia, sepsis, peritonitis or tearing out of the sutures. Progress therefore must be along the lines of preventing this operative infection. He refrains from taking any suture in the mucosa and summarizes seventy-two cases in which he applied the technic he advocates. Eleven patients succumbed to the results of the operative infection and in two-thirds of these the stomach wall proved to be too friable to hold the button. In most of these infectious cases the cancer was unusually high in the fundus and the whole stomach high and inaccessible behind the ribs so that compresses did not work well. The unusual friability of the stomach walls is probably the result of arteriosclerosis, and he is inclined to regard this as a predisposing factor for gastric cancer. In the four cases of fatal infection after a clean operation, the probable source for it was in some adjacent lymph-nodes sheltering virulent bacteria, and this possibility should be borne in mind in debating whether to remove them or not. About 42 per cent. of the patients operated on before 1910 have developed recurrence, but fourteen are in good health for two or more years. Small carcinomas developing in a callous ulcer offer the best prospects for a permanent cure, but the ultimate outcome depends after all on the patient's resisting powers. He has found that conditions guarantee better nourishment when the gastro-enterostomy is supplemented by an entero-anastomosis, as he describes in detail. He does not approve of operating in two sittings unless the patient is too weak to stand the resection at once.

55. Treatment of Elephantiasis.—Rosanow reports a case in which he restored the patient to active life by a combination and modification of Lanz and Oppel's methods for diverting the course of the lymph by anastomosis between the superficial and deep lymphatics. The photographs show the extreme improvement. Diamond-shaped patches of skin, 15 or 11 cm. across, were cut out of the thigh and calf. The subcutaneous tissue and aponeurosis were cut across on the short diameter of the diamond and then cut along one side line down to the muscle. This produced two triangular flaps; each was turned over and pushed into the space below between the layers of the muscle separated for the purpose with a blunt instrument. The flaps were held with a few catgut stitches in the muscles and periosteum. The skin was drawn together and sutured along the long diameter of the diamond, thus exerting compression on the lymphatics below. The results surpassed all anticipations.

57. Operative Treatment of Ankylosis of the Knee, Etc.—Sumita gives a long report of the experimental research on which Payr's operative treatment is based. The principle of interposing a pedunculated flap of soft tissue can be applied not only in ankylosis of the jaws and elbow but also of the knee, restoring function in a manner unattainable by any other means. The interposed flaps soon undergo a fibrous change and grow larger and develop into a kind of bursa which permits the joint to be used naturally. Payr devotes seventy-four pages and forty-one illustrations to his experiences in this line. He does not attempt the operation unless the patient is young, healthy and strong, with the extensor muscle apparatus still capable of some functioning, and the patient's will power guarantees active cooperation and he can spare the time necessary for the after-treatment. He has applied the method to three young women and a girl of 12 and to seven young men and one boy of 11. The ankylosis was of tuberculous or gonorrheal origin in two cases each. In three cases a free auto-flap of soft tissue was interposed; in the others a large flap from the fascia lata above was drawn down to hold the end of the femur in its loop. The outcome was extremely satisfactory in eight cases and conditions will probably improve in all as time passes. The interval since has been less than a year in all but two.

Beiträge zur klinischen Chirurgie, Tübingen

October, LXXX, No. 3, pp. 431-601

59 *Thymol for Sterilization of Mucosa During Operations. (Zur Schnelldesinfektion der Schleimhaut bei Operationen mit Eröffnung des Magen-Darmtractus.) A. Hoffmann.

60 Experimental Traumatic Hemorrhage in the Appendix. R. Rubesch and K. Sugi.

61 *Epidermoids of Unusual Location. H. Simon.

62 Traumatic Epithelial Cysts. F. A. Hesse.

63 Spontaneous Healing of Acute Suppurative Liver Disease After Appendicitis. N. Hellström.

64 Primary Cancer of Kidney Pelvis. (Primäre epitheliale Neubildungen des Nierenbeckens.) F. Stüsser.

65 Suture of Blood-Vessels. (Zur Technik der Gefässnaht.) R. Eden.

59. Sterilization of the Mucosa During Operations Exposing It.—Hoffmann refers particularly to rapid sterilization of the mucous membrane during operations on the stomach or intestines, and reports research on dogs which has demonstrated that a 5 per cent. alcoholic solution of thymol is effectual in rapid sterilization of the skin and mucous membranes wherever

exposed. After wiping the surface of the mucosa with a dry sponge as it is exposed in the stump of the stomach or intestine below where it is being held by a clamp, he dabs the mucosa with the 5 per cent. thymol spirits, repeating the procedure with a second sponge after a few seconds. This does not irritate the tissues while it practically sterilizes the mucosa, materially reducing the number of germs. He warns against letting the thymol come unnecessarily in contact with the serosa as liable to invite adhesions, warning further that thymol irritates and entails necrosis when it is left too long in contact with living tissue; one minute, or two minutes at most, seemed to be the limit in his experiments on dogs. With contact longer than this, the tissues always showed microscopic or visible signs of injury. In applying the method to man, he never allows the thymol in contact for more than a few seconds. He has been using this disinfectant in all kinds of operations during the last eighteen months and always with highly satisfactory results.

61. **Epidermoid Cysts of Unusual Location.**—Simon has compiled from the records twenty-five cases of epidermoid tumors on the toes, penis, arm, leg, ear, scalp, over the clavicle or on the buttocks or abdomen. The cysts are liable to rupture and become infected as in the personal case described.

Centralblatt für die Grenzgebiete der Med. und Chirurgie, Jena

November 9, XVI, No. 1, pp. 1-36

66 *Bronchiectasia from Surgical Standpoint. E. Batzdorff.
67 Partial Giant Growth. (Ueber den reinen partiellen Riesenwuchs.) E. Hahn.

66. **Operative Treatment of Bronchiectasia.**—Batzdorff analyzes eighty-nine publications on this subject, stating that in the fifty-three cases of pneumotomy a cure was realized in only 9.4 per cent.; 62 per cent. of the patients died. The principal reason for this unfavorable result was that the bronchiectasia was chronic and multiple; with numerous foci it is impossible to reach them all and operative treatment is of little use. A good result may be anticipated only with a large bronchiectasia single cavity, obliteration of which may lead to a complete cure. Mild operative measures are futile; resection of the lung seems to be the only effectual measure.

Correspondenz-Blatt für Schweizer Aerzte, Basel

November 10, XLII, No. 32, pp. 1209-1256

68 Multilocular Echinococcus Cysts; Three Cases. E. Clerc.

Deutsche medizinische Wochenschrift, Berlin

November 14, XXXVIII, No. 46, pp. 2153-2200

69 *Modern Surgery. (Die Aufgaben der modernen Chirurgie.) E. Sonnenburg.
70 *Treatment of Pernicious Anemia. (Kombinationstherapie bei perniziöser Anämie.) L. Brieger.
71 Electrocardiography and Its Interpretation. (Zur Erklärung des Elektrokardiograms und seiner klinischen Verwertung.) H. E. Hering.
72 *Serodiagnosis of Pregnancy. (Serodiagnostik der Schwangerschaft.) E. Abderhalden.
73 Leukocyte Inclusions in Scarlet Fever. (Ueber die Döhleschen Leukozyteneinschlüsse bei Scharlach.) M. Kretschmer.
74 *Motor Functioning of the Stomach with Duodenal Ulcer. S. Kreuzfuchs.
75 *Sunlight as Factor in Pellagra and Test Based Thereon. (Zur Frage einer spezifisch-diagnostischen Reaktion bei Pellagra.) H. Raubitschek.
76 *Indicator Method for Study of Urine. (Verwendung der Indikatorenmethode beim Studium der Harnreaktion.) G. Quagliariello and E. d'Agostino.
77 Spread of Diphtheria and Leprosy by Human Stools. (Verbreitung der Diphtherie und Lepra durch die Faeces.) E. Delbanco.
78 Serodiagnosis of Cancer. (Serodiagnostik der Geschwülste mittels Komplementablenkungsreaktion nach v. Dungern.) J. Lindenschatt.
79 Training of Nurses for Sick Infants. (Ausbildung von Säuglingskrankenpflegerinnen nach einheitlichen Grundsätzen.) J. Ibrahim.

69. **Modern Surgery.**—Sonnenburg remarks that the surgeon must no longer place his entire reliance on the knife but must utilize every possible means to aid the organism in its struggle against disease. He must strive to avert all the injurious influence caused by and on account of the operation, to prevent the natural protective forces from becoming exhausted and the resistance enfeebled. Complex disease processes can never be cured by exclusively operative measures. The surgeons have receded a few steps in the last few years; they no longer trephine idiots, etc., and only occasionally an epileptic, and they no longer expect to cure exophthalmic goiter by an operation on the sympathetic alone. In ileus the mechanical factors have been too much regarded in the past and the functioning of the intestines too little. Tuberculous processes in joints are operated on less and less.

70. **Pernicious Anemia.**—Brieger calls attention to the discovery of the frequently high antitrypsin content in the serum of persons with cancer and the remarkable effect of pancreatin in bringing the antitrypsin titer down to the normal figure, while the general health improved. These and other experiences have suggested that there is a connection between the condition in regard to immunity and the condition in regard to protective ferments. He found that diphtheria antitoxin contains increasing amounts of antitrypsin with increasing immunizing power—all of which confirms the importance of an unusually high antiferment content in exhausting diseases and the possibility of restoring conditions in this respect approximately to normal by pancreatin. He has applied these principles in treatment of pernicious anemia, and reports three cases in which he gave Fowler's solution, by the usual dosage after meals and pancreatin before the meals. The rapid improvement in all three patients under this combined treatment was remarkable; neither alone proved effectual. A permanent cure was not realized, two of the patients dying later after they had given up treatment, but the third has been under supervision for three years; treatment is resumed whenever the blood findings show recurrence of alarming symptoms. A striking feature of the cases was the rapid drop of the antitrypsin content of the blood to within the normal range. He has had similar improvement, although of brief duration, in several cases of cancer. He is now investigating to determine whether pancreatin will not prove a useful adjuvant in other affections. It is possible that pancreatin may have catalytic powers in addition to its effect on the digestion and assimilation.

72. **The Blood Test for Pregnancy.**—Abderhalden here reviews the results of his research which were described in THE JOURNAL, Sept. 14, 1912, p. 881, and December 7, p. 2073. The dialysis method and the optic method speedily distinguish the serum from gravid and non-gravid women and animals. Some of the experiences suggest that the placenta in different species of animals contains biologically identical or closely allied protective enzymes or ferments. The methods described seem to open a field for research in several branches of pathology. When the blood-serum is mixed with the peptone derived from a placenta and the rotation of the plane of polarized light is determined, by this optic method it is possible to differentiate the serum from the gravid and the non-gravid. In all his experience he never obtained a negative result with serum from pregnant women or animals. He found that the findings became positive when placenta material was injected subcutaneously or intravenously, even into a male. The dialysis method is even simpler. The placenta tissue is mixed with serum in a dialyzing tube and is suspended in a jar containing 20 c.c. of distilled water. After sixteen hours' incubation, 10 c.c. of the dialysate is transferred to a test-tube and tested for the products of proteolysis. A positive color reaction shows that the serum has digested the placenta tissue. Positive findings show that the serum comes from a person with a placenta but this does not tell whether there is a living fetus present or not. If the reaction is positive and there has been recent uterine hemorrhage, even in the absence of other signs of pregnancy, an abortion is suggested. The 300 cases tested to date have not yet fully settled whether the reaction is specific for pregnancy alone. The reaction generally grows weaker towards the end of the pregnancy and increases again during the puerperium. It has not failed to date in any instance of pregnancy. He urges clinicians in general to test the method and also to determine the action of the undiluted serum in different conditions on the plane of polarized light. The serum can be utilized afterward for other tests. In diabetes it might prove useful to test the rotatory action of the serum on different diets. He found that the rotatory action of the serum of the fetus sometimes differed from that of the mother's serum. In cattle only about 50 per cent. of the calves

examined displayed the same action on polarized light as the mother's serum. This confirms the biologic independence of the maternal and fetal blood.

74. **Hypermotility of the Stomach with Duodenal Ulcer.**—Kreuzfuchs found that the motor functioning of the stomach differed according as the stomach was empty or not before the test bismuth was given. Achylia and incipient cancer of the pylorus may present a radioscopic picture exactly like that of duodenal ulcer, so that the stomach content should be tested at the same time to avoid error. Hyperchlorhydria plus the duodenal gastric motility testify strongly to duodenal ulcer.

75. **Origin and Diagnosis of Pellagra.**—Raubitschek presents a further array of arguments to sustain his view that pellagra is the result of a restricted diet supplemented by the injurious action of the sunlight. It is thus a diëtetic-photodynamic disease, and in prophylaxis and treatment neither of these factors should be neglected.

76. **Indicator Method Applied to Study of the Urine.**—The changes in tint with the varying thickness of the fluid to be examined form the basis of Friedenthal's indicator method of studying various fluids. The technic has been further elaborated and applied to the study of the urine, with considerable simplification of the original method. It is commended as simple and practical, while the findings are said to be reliable.

Jahrbuch für Kinderheilkunde, Berlin

November, LVI, No. 5, pp. 507-644

80 Experimental Research on Infantile Scorbutus. (Moeller-Barlowsche Krankheit.) C. Hart.
81 *Duodenal Ulcer in Infants. (Zur Diagnose und Pathogenese des Duodenalgeschwürs im Säuglingsalter.) H. Flesch.
82 Softening of Entire Brain in Infant. (Fall von totaler Erweichung beider Grosshirnhemisphären bei einem 5 Monate alten Kinde.) E. Meier.
83 Displacement of Genital Organs in Little Girls. (Dystopie der inneren Genitalien bei Mädchen im frühen Kindesalter.) J. Vas.
84 *Abdominal Purpura (Henoch). A. Gara.
85 Congenital Myatonia. M. Bernhardt.

81. **Duodenal Ulcer in Infancy.**—In recent years duodenal ulcer has been reported much more frequently in proportion to gastric ulcer. In infants a considerable number of cases has been reported. Entz reported eleven cases in 364 autopsies at the Budapest Children's Hospital in 1908. The ages were from six weeks to six months. It is seldom diagnosed during life Flesch gives the history of a case diagnosed during life from the profound anemia and bloody stools. The child had been fed first milk and gruel, then the milk had been given up entirely. The lack of salts and the inanition caused by the improper feeding led to injury and finally to autodigestion of the duodenal mucous membrane.

84. **Henoch's Purpura.**—Gara reports two cases from his own experience and cites from the literature seventeen, all in children. The characteristic symptoms are the appearance of purpuric spots, pains in the joints, gastric and intestinal disturbances, with colic and vomiting. He concludes from the necropsy findings that purpura abdominalis is frequently associated with intussusception, whether as cause or effect is still undetermined.

Medizinische Klinik, Berlin

November 10, VIII, No. 45, pp. 1815-1852

86 Traumatic Disease of Heart or Vessels. (Zur Begutachtung und Behandlung der traumatischen Herz- und Gefässerkrankungen.) T. Rumpf.
87 Atony of the Prostate. M. Marcuse.
88 Tuberculin Treatment in Tuberculosis. (Erfahrungen und Gedanken über Tuberkulose und Tuberkulin.) L. Heine. Commenced in No. 44.
89 Pancreas Cysts. C. Decker.
90 Local Application of Heat in Urogenital Disease. Kyaw and O. Simmonds.
91 Acute Gout a Neuralgia or Neuritis. (Pathogenese des akuten Gichtanfalls.) A. Adler.
92 The Wassermann Reaction in Internal Medicine. E. Steinitz.
93 Action of Dyes in Combination with Poisons and Medicines. (Wirkung der Farbstoffe in Verbindung mit Giften und Arzneimitteln.) J. Sellei.

November 17, No. 46, pp. 1853-1892

94 *Early Diagnosis of Active Pulmonary Tuberculosis. A. Hoffmann.
95 *Gynecology and Psychiatry. J. Peretti.
96 Prophylaxis and Treatment of Puerperal Mastitis. E. Nohl.
97 Necessity for Necropsy After Fatal Trauma in Patients with Heart Disease. (Feststellung der Unfallstatsache durch die Obduktion bei Erkrankungen der Gefässe.) L. Feilchenfeld.
98 *Distant Reaction of Degeneration. (Klinische Bedeutung der "Fernreaktion auf Entartung" von Ghilarducci.) V. Forli.
99 *Treatment of Flat-Foot. (Plattfussbehandlung.) J. A. L. Stephan.
100 Powder Treatment of Vaginal Disease. (Die Pulverbehandlung beim Ausfluss aus der Scheide.) M. Nassauer.
101 Recent Research on Heredity. (Die neueren Forschungen auf dem Gebiete der Descendenztheorie.) A. Jacobsohn.
102 *Minor Practical Points. (Praktische Winke.) R. Niewerth.

94. **Early Diagnosis of Pulmonary Tuberculosis.**—Hoffmann is in charge of the observation station with eighteen beds to which candidates for the public sanatoriums are referred for selection of the cases promising recovery under institutional care. During the last year 500 patients were thus examined. The outcome of the cases is compared with the presumptive diagnosis made in the observation station. He has found percussion of the apices of little use for detection of incipient tuberculosis, as also the finer modifications in the breathing sounds. To avoid disturbing muscle sounds, he gives the patient the evening before 1 gm. sodium iodid and a sedative, sometimes repeating the sedative early the next morning. The skin and eye tuberculin tests are useless in adults, but radiography is of the greatest help. In many cases in which the clinical examination was dubious, the radiograms settled the question for or against tuberculosis. Of his 700 roentgen-ray plates, 200 were examined for disease on both sides, and it was found bilateral in 114; in all some connection with the hilus was evident. The foci are not always at the apex, but may spread sideways from the hilus in triangular shape. This connection with the hilus is an important aid in dubious cases. Radiography was of the least use in cases with initial hemoptysis. Other cases of tuberculosis in the family were known in only 18 per cent. of the total material. Pains in the back, chest, side, abdomen or sacral region were more common than cough in the patients examined. Among those who proved not to be tuberculous—although sent in with this diagnosis—were some with diabetes, nephritis, tapeworm or cervical ribs, and 15 per cent. of them had acute bronchitis; others were debilitated from defective food or alcoholism. His experiences show that it is impossible to diagnose or exclude incipient pulmonary tuberculosis by office examination. Photograph records of the roentgen-ray findings are indispensable, he thinks, and reexamination after two and four months on a presumptive negative diagnosis. Another point emphasized by his experience is that pulmonary tuberculosis often reaches an advanced stage without the patient having ever consulted a physician.

95. **Gynecology and Psychiatry.**—Peretti protests energetically against Bossi's demand that women with mental disease should be sent first to a gynecologic clinic and gynecologic morbid conditions corrected before being taken to the insane asylum. He presents a number of arguments to show the inadvisability of such a measure. He has had a number of patients in the institution in his charge in which the mental disease was not modified by thorough gynecologic treatment.

98. **The Distant Reaction of Degeneration.**—Forli calls attention anew to Ghilarducci's distant reaction, that is, placing the electrodes at a distance from the muscle to be tested, in such a way that the muscle lies between the poles. A distinct contraction can be felt in the muscle when the current is closed. He reports three cases to show the value of this reaction, both in diagnosis and prognosis. Hope need not be given up as long as this distant reaction occurs, even when all other electric tests give a negative response.

99. **Treatment of Flat-Foot.**—Stephan uses a kind of stilt to bring the bones of the foot into proper position. It differs from ordinary stilts only in that the foot-piece rests on the floor, and slopes upward to its outer edge, so that the scaphoid bone is raised, thus restoring the arch of the foot. The foot is placed in the stilt with its outer edge against the shaft. He has his patients walk with the stilt once or twice a day in their room until the bones stay in the proper position. Children with flat-foot find these stilts a pleasant diversion.

102. **Some Improvised Helps.**—Niewerth calls attention to the coffee-pot as useful for an improvised inhalation apparatus. The patient takes the spout in his mouth.——A handy thermophor can be made of a stout linen bag holding two pounds of

oats or bran, heating the bag in the oven.——In case of a boil in the axilla or on the arm or a felon, the arm can be comfortably supported as the patient reclines, by placing a board under the arm, the end under the axilla resting on the bed, the other end held up at an angle of 45 degrees by a rope fastened to a nail in the wall at the head of the bed.——In suturing the perineum after delivery, he is careful not to cut the threads but to leave the ends long and tie them together in a bunch about 5 cm. from the skin before cutting the ends. By this means one is sure of not overlooking any of the threads later.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

November, XXXVI, No. 5, pp. 515-636

103 Abortions at Bremen Maternity in Four Years. (692 Fälle von Fehlgeburt.) O. Schmidt.
104 *Stroganoff's Prophylactic Treatment of Eclampsia. C. Holste.
105 *Enucleation of Uterine Myomas. P. Schöpp.
106 Changes in Fallopian Tube During Pregnancy. (Schwangerschaftsveränderungen der Tube.) J. Wallart.

104. **Stroganoff's Prophylactic Treatment for Eclampsia.**—As THE JOURNAL has repeatedly mentioned, the essential feature of Stroganoff's treatment is the long continued administration of morphin and chloral hydrate and the absolute avoidance of external irritation by quiet, darkening of the room, and in some cases chloroform, with delivery by version or forceps in extreme cases. (For literature on the subject see THE JOURNAL, Nov. 30, 1912, p. 1992.) His dosage may be summarized as follows: immediately 0.01 or 0.02 gm. morphin; one hour later, 1.5 or 2.5 gm. chloral hydrate; the third hour, 0.015 gm. morphin; the seventh hour, 2 gm. chloral, and the thirteenth and twenty-first hour, 1.5 gm. chloral. Holste has treated fifteen women satisfactorily by Stroganoff's method with some modifications. He does not hesitate to induce labor more freely by means of bags, and he does not continue the medication after delivery for fear of secondary lung complications. He discontinues the drugs as soon as marked improvement is noted. He advocates the giving of morphin at the first sign of prodromal symptoms, and thinks that convulsions may often be avoided in this way. He mentions as a possibility in treatment, the administration of serum from a pregnant woman. This serotherapy has been tried in a few cases. On the whole he regards Stroganoff's treatment as preferable to immediate delivery by vaginal or cesarean section, although the method is far from ideal.

105. **Enucleation of Myomas.**—On the basis of sixty operations performed by him, Schöpp discusses the value of enucleating myomas as compared with the radical removal of the uterus. The conservative operation presents greater technical difficulties than the radical one, yet the mortality was only 5 per cent.; not greater than is common in hysterectomies. The great advantage of the enucleation technic is that it leaves the patient capable of bearing children; 10 per cent. of his patients bore children after the operation. In two cases the operation was performed on a gravid uterus with happy results for mother and child. The point commonly urged against enucleation is the danger of recurrence. In 70 per cent. of his cases there was no sign of recurrence. Moreover, at the present time roentgenotherapy offers a valuable adjuvant measure in the treatment of small myomatous nodules which may have escaped detection at the operation.

Münchener medizinische Wochenschrift

November 12, LIX, No. 46, pp. 2489-2544

107 Salvarsan in Treatment of Oriental Sore. (Salvarsanbehandlung der Leishmaniose.) O. v. Petersen.
108 *Improved Technic for Proteolytic Test. (Neue Methode der Darstellung und Registrierung der Wirkung proteolytischer Fermente.) A. Kantorowicz.
109 Resistance of Peritoneum to Infection. (Ueber anatomisch nachweisbare Unterschiede in der Widerstandskraft der Bauchhöhle gegen eine eindringende Infektion.) A. Mayer.
110 Roentgenoscopy of Stomach and Intestines. (Zur Röntgenuntersuchung von Magen und Darm.) A. Hoffmann.
111 Operative Treatment for Sterility. ((Chirurgie der Sterilität.) A. F. Kehrer.
112 *Bone Marrow Grafting. (Knochenmarkstransplantation.) O. M. Chiari.
113 *Prophylactic Appendectomy. (Notwendigkeit der prophylaktischen Appendektomie bei gynäkologischen Operationen, zugleich ein Beitrag zur Frage der sogenannten Appendixkarsinome.) A. Hörrmann.
114 Plastic Operation on Finger. (Fingerplastik.) A. W. Meyer.
115 Acute Amblyopia from Ethyl Alcohol. Kaiser.
116 When to Drain the Common Bile Duct. (Indikationen für die Hepatikusdrainage.) B. Riedel.
117 Excretion of Urea Through the Skin in Nephritis. Portig.

108. **Improved Technic for the Antitrypsin Test.**—The original technic for the test of the action of the proteolytic ferments was with a Loeffler plate to which loopfuls of the solution of the ferment were transferred. Kantorowicz has improved on this by using sheets of gelatin instead of the plate; the gelatin sheets keep indefinitely and the record is thus permanent. He uses fine gelatin, such as comes for culture mediums, dissolving 6 gm. in 100 c.c. of physiologic salt solution stained deep red with fuchsin and rendered sterile by addition of 0.5 gm. of phenol. He pours 10 c.c. into rectangular shallow dishes. They can be made out of old photograph plates by running a strip of gelatin around the edge to form a wall, pouring the gelatine inside this wall as it hardens. The normal serum digests a circular patch of the gelatine; the presence of the antitrypsin ferment is shown by the smallness of the resulting hole. After twenty-four hours at 22 C., a little lake is seen where each drop has been deposited. The sheet of gelatine is then rinsed in water and the holes in the gelatine look as if punched out with a circular punch, as he shows by two illustrations. The hard sheets of gelatine can be kept indefinitely.

112. **Transplantation of Bone Marrow.**—Chiari reports successful transplantation into the spleen of a rabbit of a small lump of bone marrow. It had retained its vitality and was found to have increased materially in size when the animal was killed five months later.

113. **Necessity for Prophylactic Appendectomy.**—Hörrmann insists on the advantages of removing the appendix when the abdomen is opened for a gynecologic operation, reporting instances in which the macroscopically sound appendix was found diseased and a tendency to cancer in some. Of course, after the age of 60 he would not remove the appendix without special cause, nor with cancer, nor in emergency operations.

Wiener klinische Wochenschrift, Vienna

November 14, XXV, No. 46, pp. 1817-1856

118 Specific Extracts of Parasites in Treatment of Trichophytosis. R. O. Stein.
119 *Serodiagnosis of Cancer. (Verwertbarkeit der Freund-Kaminerschen Reaktion.) L. Arst and W. Kerl.
120 Nodular Syphilitic Meningitis. K. Sugi.
121 Nystagmus in Fever. O. Beck and P. Biach.
122 *Foreign Bodies in Bladder of Girl Infants. (Ueber Harnblasenerkrankungen bei kleinen Mädchen durch bisher nicht beobachtete Fremdkörper.) H. Abels.

119. **Serodiagnosis of Cancer.**—The findings on examination of 250 serums from different sources are tabulated. In seventy-four cases the diagnosis on the basis of the serum findings was confirmed by necropsy or histologic findings. In fifty-eight of these all the findings corroborated each other. In sixteen some were contradictory. In 118 cases with only clinical confirmation of the diagnosis there was a contradiction only in seventeen cases. In some of the dubious cases the findings classed as doubtful might really be listed as positive. The table shows that the meiostagmin reaction gave positive findings in 82.8 per cent. of 399 cases of cancer while the reaction was positive only in 9.5 per cent. of 548 persons healthy or with other affections, as reported by eleven research workers. Ascoli obtained a positive reaction in 93 per cent. of his 100 cases. With the Freund-Kaminer technic a positive reaction was obtained in 83 per cent. of fifty-three cases of known cancer, and only in 12.5 per cent. of sixteen patients with other affections. Freund and Kaminer comment on the above report that it is suggestive that two patients with tuberculosis and three with gall-stone trouble are in the list of contradictory findings. In one such case in their experience the gall-stone trouble masked a cancer. They warn further that the state of the blood during digestion is liable to interfere with the test for serodiagnosis; the blood should be taken during a fasting period. Another source of possible error is the presence of red corpuscles in the serum; the more limpid the serum the better the findings. Addition of a little phenol keeps the serum in good condition for two weeks, and when the cell material is thoroughly rinsed

with salt solution they found it active for five months. They state that by using smaller amounts of serum for the test, it is possible to repeat the procedure several times with a given amount of blood. Tests with only a drop or two of serum on the slide have given characteristic results.

122. **Bladder Affections of Unusual Origin in Girl Infants.**—Abels reports two cases in which severe cystitis in children 9 and 17 months old was explained by discovery of paper and a hair in the bladder, and Blum has recently reported a somewhat similar case in a girl of 4. In the latter case threads from the child's clothing were found in the bladder, and it was learned that she had a habit of pressing her clothes on the urethra to control micturition. In the cases of the infants, paper had evidently been rolled up and wound with a hair and introduced like a catheter into the bladder by another person.

Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart

LXXII, No. 1, pp. 1-251. Last indexed Oct. 26, p. 1584

123 Development of Uterus. (Zur Entwicklung der Form und Lage des Uterus und seiner Ligamente.) C. H. Stratz.
124 Changes in Tubal Pregnancy During Menstruation. (Veränderungen der Eileiterschwangerschaft während der Menstruation.) B. H. Jägerroos.
125 Training of Obstetrical Nurses and Midwives in Prophylaxis of Puerperal Fever. F. Ahlfeld.
126 We Have Outgrown Drainage After Abdominal Operations. (Wert der Bauchhöhlendrainage.) H. Schlimpert.
127 No Warning Symptoms of Thrombosis or Embolism. (Gibt es prämonitorische Symptome der Thrombose und Embolie?) W. Nacke.
128 *Puerperal Tetanus; Three Cases. H. Freund.
129 Sugar Metabolism in Pregnancy and the Puerperium. (Der Zuckerstoffwechsel in der Schwangerschaft und im Wochenbett—Schwangerschaftsleber.) E. Bergsma.
130 Biologic Tests to Determine Sex of Fetus Before Birth; Negative Findings. (Versuch der intrauterinen Geschlechtsdifferenzierung.) T. Petri.
131 *Anesthesia by Epidural Injections. (Hohe und tiefe extradurale Anästhesien.) B. Strauss.

128. **Puerperal Tetanus.**—Freund has encountered three cases at intervals of years and is convinced that the infection occurred from the anus through some laceration of the perineum, as all other causes seemed to be excluded. His experiences teach that women approaching term should be very careful in eating green vegetables and uncooked berries, as these are liable to be contaminated with tetanus germs and thus may infect the obstetric wounds through the stools. His experience further confirms the value of the traditional practice of giving an active and thorough purge at the beginning of labor and a cleansing enema during the second stage of labor, with careful cleansing afterward. He warns further that no obstetric operation should be undertaken without thorough cleansing and sterilization of the skin and protection against infection from the anus. He uses for the purpose a large gauze compress pressed between the buttocks, fastened with plaster, and a towel over the whole, firmly fastened in place. He thinks that a vaginal douche before the first internal examination and before every obstetric intervention is the best protection against infection from without. The alleged harm from changing the chemistry of the vaginal secretions by the douches is far outbalanced by the benefit from mechanically washing out the germs and the material in which the germs find conditions favorable for their development. Freund adds further that a prophylactic dose of tetanus antitoxin should be given in every case of criminal abortion in which a wooden instrument was used or its use suspected. If the tetanus has developed, antitoxin treatment has little prospect of success unless the bacilli are in evidence. In his three cases he was not able to find the bacilli as the period of incubation had been so long before the tetanus developed. In the first case a healthy woman convalescing from a well managed childbirth developed fatal tetanus, the first symptoms appearing the ninth day and no source for the infection could be discovered except the possible infection from the stools. He adds a case of tetanus from infection of the umbilicus which he traced to the custom of dressing the umbilicus with the sawdust resulting from the boring of the wood beetle in the banisters—this *Holzpulver* being a favorite family remedy in some districts of Germany. Freund refers to the Prague epidemic of puerperal tetanus in 1898 in which twenty-eight women died in the course of eighteen months

131. **Epidural Anesthesia.**—Strauss reviews his experiences with eighty cases in which operations were performed under extradural sacral injection of the anesthetic. The chief advantage of the method is the total absence of complications on the part of the air passages. No headache followed the injections, such as is frequent with spinal anesthesia. He tabulates the details of the various cases but adds at a later date the case of a woman of 27 who succumbed during an operation for uterine cancer six weeks after a childbirth and necropsy revealed chronic nephritis, tuberculosis of the kidney and metastasis in the liver which, he thinks, is sufficient to explain the fatality without incriminating the method of anesthesia. Otherwise he had no by-effects except, in a few cases, transient pallor and acceleration of the pulse.

Zeitschrift für Urologie, Berlin

November, VI, No. 11, pp. 887-996

132 Blunders Liable in Interpretation of Cystoscope Findings. (Cystoskopische Irrtümer.) F. Weisz.
133 Congenital Displacement of the Kidney. (Fall von Nierendystopie.) A. G. Lukina.

Gazzetta degli Ospedali e delle Cliniche, Milan

November 10, XXXIII, No. 135, pp. 1409-1424

134 Can Spirochetes Penetrate Intact Skin and Mucosa? (La penetrazione dell'agente sifilitico in ispecie, degli spirochetti patogeni in genere si puo fare attraverso a pelle e mucose integre?) E. Bertarelli.

November 12, No. 136, pp. 1425-1432

135 Iodin Exposed to Roentgen Rays Before Administration in Tuberculosis. (L'iodo ed i raggi x.) C. Sighicelli.

November 14, No. 137, pp. 1433-1440

136 Salvarsan Not Effectual in Malaria. (Il 606 nella infezione malarica.) V. Fusco.

November 17, No. 138, pp. 1441-1456

137 *Moist Heat in External Treatment of Infant's Diseases. (La termoterapia nelle malattie dell'infanzia.) P. Bueri.

137. **External Local Heat in Treatment of Infants' Diseases.**—Hot compresses applied to the chest or abdomen are regarded by Bueri as a most valuable adjuvant in treatment of sick infants. They aid in promoting and regulating the circulation, combating congestion and stimulating the internal organs to better functioning. Especially for gastro-intestinal disturbances, peritonitis and inflammation in the mesenteric glands, this thermotherapy is one of the best measures at our disposal, as he demonstrates anew by a few instances of remarkable benefit from hot fomentations in such cases.

Policlinico, Rome

November 17, XIX, No. 47, pp. 1705-1740

138 Treatment of Non-Consolidating Fracture. C. Bartolotti.

Riforma Medica, Naples

November 9, XXVIII, No. 45, pp. 1233-1260

139 Biologic Research on Cholera Germs. (Antagonismo tra microorganismi isolati dalle feci ed il vibrione di Koch. Virulenza del vibrione di Koch isolato da portatori. Un vibrione acquatile.) D. Pane.
140 Sarcoma of the Scapula. (Considerazioni anatomo-patologiche e contributo clinico sui sarcomi della scapula operati con resezione totale e subtotale.) M. Dardanelli. Commenced in No. 44.

Semana Medica, Buenos Aires

October 24, XIX, No. 43, pp. 809-868

141 Somnambulism in Hysteric Girl of 16. (Desdoblamiento de la personalidad.) C. Dominguez.

Norsk Magazin for Lægevidenskaben, Christiania

November, LXXIII, No. 11, pp. 1537-1692

142 Transient Amaurosis Following Abortion. H. Gjessing.
143 Transplantation in Surgery. (Om transplantationer og deres praktiske anvendelse.) S. Widerøe.
144 Ischemic Contracture. E. F. Lindboe.
145 Two Cases of Amaurotic Idiocy. V. Magnus.
146 Operative Case of Tardy Traumatic Cerebral Apoplexy. (Traumatisk sen-apoplexi.) V. Magnus.
147 Phases of Tuberculosis in Relation to Immunity; Prevalence, etc. (Tuberkulosens stadier og immunitetsforhold.) K. F. Andvord.

Ugeskrift for Læger, Copenhagen

November 14, LXXIV, No. 46, pp. 1673-1710

148 *Color Test for Quantitative Determination of Albumin in the Sputum. (Kolorimetrisk kvantitativ Bestemmelse af Albumin i Opløsninger.) M. Claudius.

148. **Quantitative Color Test for Albumin.**—Already summarized in THE JOURNAL, Nov. 16, 1912, p. 1833.